N485
1944

STATE OF NEW YORK

ANNUAL REPORT

OF THE

STATE TRAFFIC COMMISSION

1944

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STATE TRAFFIC COMMISSION

Albany, N. Y., February 1, 1945

TO: Hon. Joseph R. Hanley, President of the Senate

Hon. Oswald D. Heck, Speaker of the Assembly

Sirs:

Transmitted herewith is the Annual Report of the State Traffic Commission for the year 1944.

CLIFFORD J. FLETCHER

Chairman

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1944

MEMBERS

OF THE

NEW YORK STATE TRAFFIC COMMISSION

Clifford J. Fletcher, Chairman
Commissioner of Motor Vehicles

John A. Gaffney
Superintendent of State Police

Harvey O. Schermerhorn
Acting Chief Engineer
Department of Public Works

Dr. George M. Wiley
Associate Commissioner
Department of Education

R. C. Georger
Director

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STATE TRAFFIC COMMISSION

ANNUAL REPORT

HISTORY

The State Traffic Commission was created by Chapter 910 of the Laws of 1936 (Vehicle & Traffic Law, Article 7), and assumed office on September 1, 1936. As originally constituted the Commission was composed of the Commissioner of Motor Vehicles, the Superintendent of State Police, and the Commissioner of Highways, with the Commissioner of Motor Vehicles as Chairman and Administrative Head. By Chapter 792 Laws of 1941, which became effective April 26, 1941, the Associate Commissioner of Education having supervision and direction of safety education in the public schools, was added to the Commission.

The reorganization of the Department of Public Works which became effective April 1, 1944, changed the title of the Commissioner of Highways to Deputy Chief Engineer of the Department of Public Works. In an opinion of the Attorney General dated May 16, 1944, it was held that the former Commissioner of Highways could properly continue as a member of the Commission under his new title. It is anticipated that suitable legislative action to straighten out this matter will be taken in 1945.

By reason of its membership, the Traffic Commission brings together the Bureau of Motor Vehicles, the Division of State Police, the Department of Education, and the Department of Public Works, the four State Departments which are concerned with the safety and operation of motor vehicles, and the regulation and education of drivers. It coordinates their activities in the field of motor transport, and obtains their assistance in carrying out its functions.

It may be said that this is considered by experts to be the ideal set-up for a State organization designed to regulate and promote the safety of traffic. Many inquiries have been received from other States relative to the organization, powers and duties of the New York State Traffic Commission, with the view to the possible adoption of a similar plan.

At the time of its creation, an appropriation of $20,000.00 was made for the operation of the Traffic Commission to the close of the fiscal year ending June 30, 1937. This was followed by similar appropriations for the fiscal years ending June 30, 1938, and June 30, 1939. The Legislatures of 1939 and 1940 did not make any appropriations for the support of the Commission.

In order that the work of the Commission might be continued, and acting under authority of Section 95 of the Vehicle & Traffic Law, which provides that technical and other services for the Commission may

be performed by forces subordinate to the members of the Commission, the Superintendent of Public Works on July 1, 1939 ordered the Engineer of Highway Transport of the Department of Public Works to take over the duties of Secretary of the Traffic Commission in addition to his work with the Division of Highways, assisted by a staff of three clerical employees. One of the clerical positions became vacant on April 7, 1943, and has not been filled. Due to the heavy volume of work, an additional engineer was assigned by the Commissioner of Highways to the Traffic Commission on July 16, 1941.

It should be noted that these employees carry out their functions as the Traffic Bureau of the Department of Public Works, as well as being the operating force of the Traffic Commission. This is possible because the traffic control work of the Department of Public Works is intimately connected with the work of the Traffic Commission, and the arrangement eliminates considerable paper work and duplication of effort. It has the advantage that the liaison thus established assures that Traffic Commission orders are adjusted to the ability of the Department of Public Works, financial and otherwise, to carry them out. It also facilitates the obtaining of technical assistance for the Traffic Commission as required in its work.

The Legislature of 1941 appropriated $10,000.00 for the support of the Traffic Commission for the fiscal year ending June 30, 1942, and succeeding Legislatures appropriated $10,000.00 for the fiscal year ending June 30, 1943, $9,915.00 for the fiscal year ending March 31, 1944, and $10,000.00 for the fiscal year ending March 31, 1945.

The resumption of appropriations for the support of the Commission enabled it to employ three additional clerical employees, and a Junior Civil Engineer (Traffic), who were badly needed. The position of Junior Civil Engineer, however, was not filled until September 16, 1941, and became vacant on December 22, 1942, when the incumbent entered military service. It has not been found possible to fill this vacancy to date. To assist in meeting the situation the Commissioner of Highways temporarily assigned a Senior Engineering Aide to the Commission on November 8, 1943.

In common with all State Agencies, the war has caused a comparatively frequent turn-over in the clerical staff of the Commission. This has been quite a handicap, since the work of the Commission is highly specialized and employees require considerable training before they are able to efficiently carry out their duties.

FUNCTIONS AND POWERS

1. The Traffic Commission has jurisdiction over all traffic signals on the State System of Highways.

2. It has jurisdiction over all signs and markings used on the State System of Highways.

3. It may establish zones on the State System of Highways, outside of cities and incorporated villages, in which speed is restricted to below that permitted by the speed laws of the State.

4. It may, upon the request of a County Superintendent of Highways and the Town Board of the Town affected, establish zones on county roads or town highways, outside of cities and incorporated villages, in which speed is restricted to below that of the speed laws of the State.

5. It may restrict or prohibit the parking of vehicles on all State highways, and on any highway intersecting or meeting a State highway for a distance of not exceeding 100 feet from such State highway.

6. It may order the erection of WARNING or STOP signs on any roads, outside of a city, which intersect a State highway.

7. It may direct the proper signing of touring routes throughout the cities of the State.

8. It may formulate uniform highway safety programs and coordinate the efforts of individuals and agencies engaged in safety education.

9. It may advise, assist, and cooperate with officials of cities and villages in their traffic problems.

10. It may maintain a continuous survey of traffic conditions on the public highways of the State and make recommendations to the appropriate authority, as it may deem advisable.

11. It may hold meetings and public hearings within the State.

12. It has the power to subpoena and compel the attendance of witnesses, to require the production of books, records and documents, and to take and hear proofs and testimony.

13. It may cooperate with State and Federal agencies in the formulation and execution of plans for rapid and safe movement of troops, vehicles of a military nature, and materials affecting the national defense, and coordinate the activities of the departments from which Commission members are named in a manner which will best accomplish this purpose.

14. It may solicit the cooperation of officials of the various political subdivisions of the State.

15. It may take an inventory of the trucks and buses in the State, which would be available in case of emergency affecting the national defense.

16. It may conduct a highway safety and driver training program as an aid to the national defense.

17. It may adopt rules and regulations as it may deem necessary to effectively accomplish the purposes for which it was created. Violation of such rules and regulations is punishable by fine or imprisonment, or both.

METHOD OF OPERATION

Field investigations for the Commission are carried out by the Division of State Police and the Department of Public Works. The Division of State Police maintains a Traffic Supervisor in each of its seven Troops, under the supervision of an Inspector who heads its Traffic Bureau. The Department of Public Works maintains a Traffic Engineer in each of its ten Districts. Their work is coordinated by an Engineer of Highway Transport, who is in charge of the traffic activities of the Department of Public Works in addition to his duties as Secretary of the Traffic Commission.

The Bureau of Motor Vehicles supplies the Commission with statistics regarding accidents. From the accident reports which it receives, it prepares cards for accidents occurring on the State System of Highways. These are forwarded to the Districts of the State Department of Public Works through the Traffic Commission for their use in studying accidents and in maintaining spot maps. It also handles the distribution of publications issued or sponsored by the Commission.

The Department of Education conducts classes in safety education in the schools of the State. It also organizes and conducts programs for the training of bus drivers.

A large volume of work is performed by the Commission's staff. This consists of administrative duties, correspondence with local officials and citizens relative to traffic matters, the study and coordination of reports submitted by the Department of Public Works and the State Police, investigation of traffic conditions in the field, the preparation of recommendations to the Commission for action to be taken in each case, and the issuance of orders for the execution of the Commission's decisions. It also conducts the research and study necessary to carry out the functions of the Commission and to coordinate the regulation of traffic in this State with other States in the nation, together with appropriate action.

Orders of the Traffic Commission which require the erection and maintenance of signs, signals or markings on the State System of Highways are carried out by the Department of Public Works, which provides the materials, supervision, engineering, and labor. The Department of Public Works also provides engineering and technical services necessary in the design and preparation of standards, and in engineering studies of traffic characteristics.

All matters relating to traffic conditions on the State System and on other highways in matters over which it has jurisdiction, which are brought to its attention by local officials or citizens, are investigated by the Commission and appropriate action taken. In addition, many investigations are initiated by the Commission itself.

GENERAL

Although this nation did not enter the war until December 1941, its approaching shadow had a considerable effect upon traffic and the work of the Traffic Commission, almost from the beginning of the year. From February 1941, when the Governor designated the Traffic Commission as the Highway Traffic Advisory Committee to the War Department, and with the creation by the State War Council on May 12, 1942 of the War Transportation Committee, which consisted of the State Traffic Commission with the addition of a representative of the Public Service Commission and of the New York City Transit Commission, a considerable portion of its activities have been devoted to the conservation and maintenance of essential transportation in the State, and to cooperation with Federal Agencies in the field of transportation. The activities of the Traffic Commission in this field are discussed later under the heading "War Transportation Committee".

Shortages of material began to make themselves felt as early as the middle of 1941. From then on it became increasingly difficult to obtain signs, signals, insulated wire, traffic paint, and the numerous other items which are used in traffic control. The situation has become worse with the progress of the war, and the Department of Public Works has been limited in carrying out the orders of the Traffic Commission to materials which it had in stock before the shortages developed, supplemented by occasional small purchases of such materials as might be temporarily available, and items salvaged from installations temporarily unnecessary because of wartime conditions. The Traffic Commission has kept this condition in mind, and has confined its orders for the installation of traffic control devices to the ability of the Department of Public Works to carry out such orders.

Fortunately, the decline in traffic volume due to wartime conditions has considerably reduced the need for additional traffic control devices. In some instances it has been possible to build up a reserve stock by the removal of items, especially traffic signals, for which the need does not exist under wartime conditions.

The reduced volume of traffic also temporarily relieved the pressure of purely Traffic Commission work, although not to the extent which might have been expected, and made it possible for it to co operate with the War Transportation Committee. The following list of field investigations made by the Traffic Commission from 1940 to 1944, will serve as a partial index of its activities.

YEAR	INVESTIGATIONS
1940	551
1941	741
1942	607
1943	509
1944	479

These figures cover only those cases in which investigations were made in the field at the request of the Traffic Commission by the Department of Public Works, the Division of State Police, or both. They do not include investigations made in connection with the STOP sign survey, nor cases which did not require reference to the field and which could be handled by data in the Commission's files, investigations made for the War Transportation Committee, nor investigations made locally by the Traffic Engineer of the Department of Public Works and the Traffic Supervisor of the State Police, which were not referred to the Commission because action was taken in accordance with standards as detailed in the Manuals issued by the Commission. From rough figures available, it is safe to estimate that the number of these latter exceeds the number of investigations made upon request of the Traffic Commission.

Since a comparatively large percent of the case load is generated by correspondence from citizens relative to conditions which have come to their attention while driving along the highway, it may be expected that there will be a sharp rise in these figures when traffic increases in the post war period.

TRAFFIC

Traffic volumes in both the State and the Nation rose to a peak in 1941, and then steadily declined to 1944, when an upward trend became apparent. The decrease in volume has undoubtedly been due to the influence of the program for the conservation of vehicular transportation, the strict rationing of gasoline and tires, the wearing out of motor vehicles of all types and the inability to replace most of these vehicles.

The distribution of traffic has also changed to a marked degree. In general, there has been a large decrease on rural roads, with a lesser decrease in urban areas. In some locations, principally in the vicinity of war industries, it has increased.

Reference to Table No. 1 will make clear the effect of the war on traffic volumes. This Table lists the gasoline consumption and the estimated number of vehicle miles traveled in New York State in the years 1936 to 1944. Vehicular mileage has been computed on the basis of the percentage of the various types of vehicles using the highways, exclusive of motorcycles and trailers, the average miles per gallon of gasoline, and the gallons of gasoline sold for motor fuel.

In preparing this estimate it was assumed that for the years 1936 to 1941, 76% of the vehicles using the highways were passenger cars, 22% were trucks and 2% were buses. For the years 1942 to 1944, it was assumed that the number of passenger cars dropped to 70%, the number of trucks increased to 27%, and the number of buses increased to 3%. These assumptions are based on records of the Highway Planning Survey for 1939, 1942, 1943 and 1944. The generally accepted figures of 15 miles per gallon for passenger cars, 9 miles per gallon for trucks and 4.9 miles per gallon for buses were used.

TABLE NO. 1

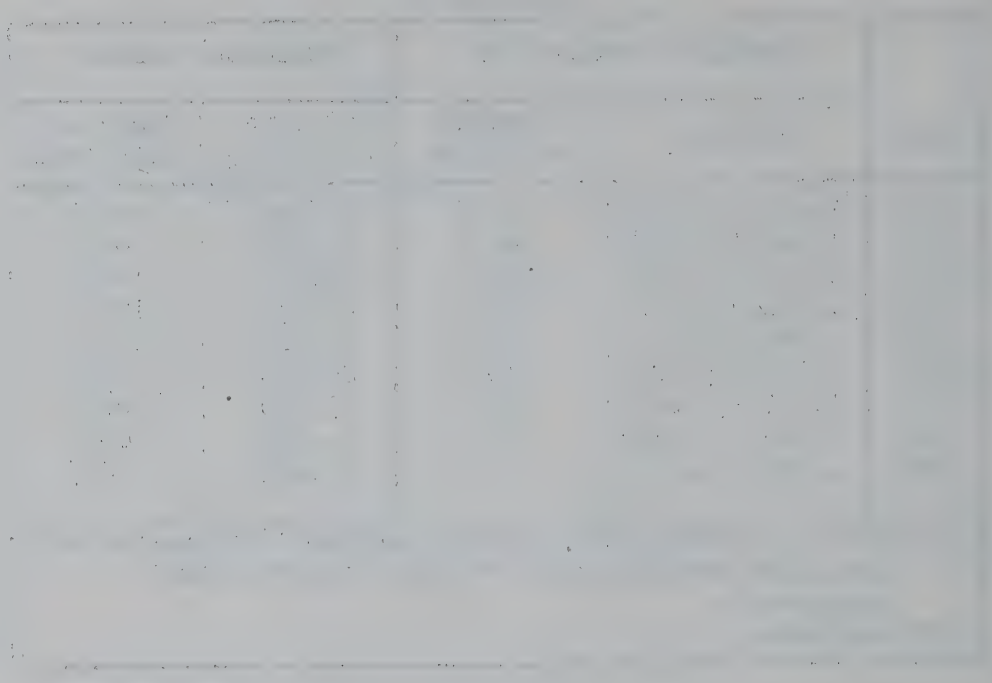
YEAR	GASOLINE CONSUMPTION		VEHICULAR MILEAGE	
	Gallons[1]	Compared With 1936	Millions of Miles[2]	Compared With 1936
1936	1,666,447,407	100 %	22,440	100 %
1937	1,748,157,708	105 %	23,548	105 %
1938	1,735,101,554	104 %	23,372	104 %
1939	1,820,743,272	109 %	24,533	109 %
1940	1,894,490,937	114 %	25,526	114 %
1941	1,957,889,809	118 %	26,388	118 %
1942	1,476,194,648	89 %	19,328	86 %
1943	1,129,971,836	68 %	14,795	66 %
1944	1,193,614,257	72 %	15,623	70 %

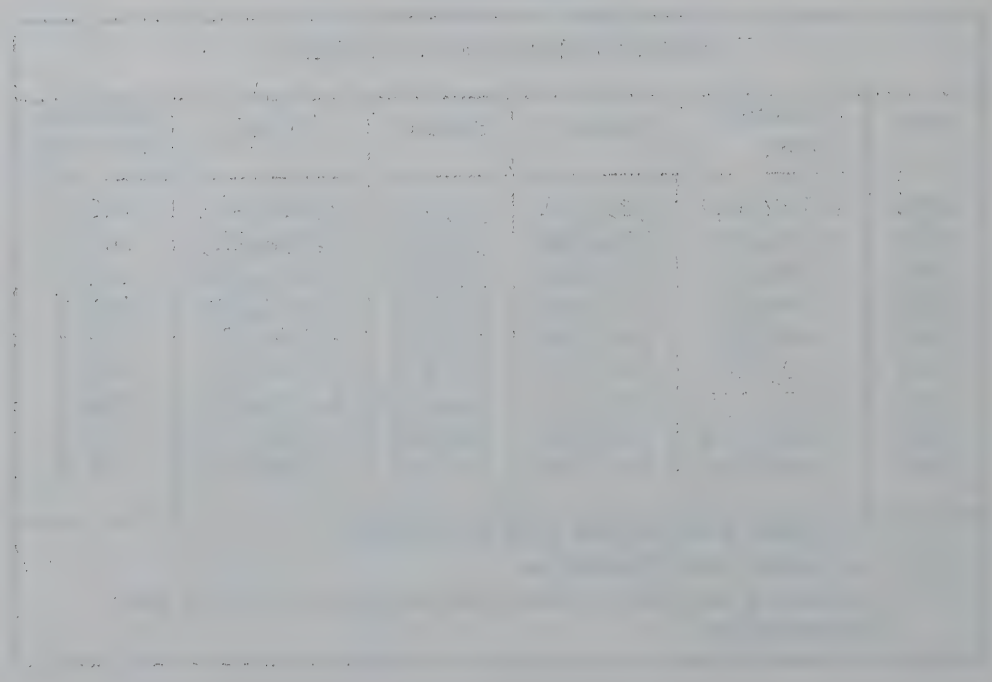
(1) Taxable gasoline less refunds allowed for non-highway use, plus gasoline sold to State and Municipal government.
(2) Estimated.

TABLE NO. 2

MOTOR VEHICLE REGISTRATIONS					
YEAR	Passenger Cars[1]	Trucks[2]	Buses	Total[3]	Compared With 1936
1936	2,122,119	325,731	35,093	2,482,943	100 %
1937	2,226,492	332,891	32,832	2,592,215	104 %
1938	2,252,751	329,027	33,942	2,615,720	105 %
1939	2,321,871	334,020	32,513	2,688,404	108 %
1940	2,407,930	343,550	32,738	2,784,218	112 %
1941	2,525,845	347,543	30,954	2,904,342	117 %
1942	2,270,135	329,524	31,671	2,631,330	106 %
1943	1,961,226	310,258	29,964	2,301,448	93 %
1944	1,948,959	310,744	30,373	2,290,076	92 %

(1) Includes Ambulances and Suburbans
(2) Includes Farm Vehicles
(3) Includes all Motor Vehicles except Trailers and Motorcycles





With the exception of a small number of commercial vehicles, there have been no motor vehicles manufactured for civilian use since the beginning of 1942, and transportation by motor vehicle has been carried on by the vehicles in use at that time. An indication of the situation as regards the available supply of motor vehicles in New York State may be obtained by reference to Table No. 2 which shows total motor vehicle registration in the State, exclusive of trailers and motorcycles, for the years 1936 to 1944. It will be noted that the registration at the end of 1944 shows a loss of 614,266 motor vehicles since 1941, a decrease of 21%.

ACCIDENTS

The Bureau of Motor Vehicles publishes very complete statistics relative to motor vehicle accidents. For this reason, no analyses of types, severity, and causes of accidents are included in this report.

To an agency such as the State Traffic Commission, whose concern is the safe and orderly movement of traffic, and the elimination of conditions leading to accidents, the fact that an accident of sufficient severity to cause death or injury has occurred is of importance. Leaving out the factor of speed, the question of whether the accident resulted in a fatality or a personal injury, or the number of fatalities and personal injuries resultant from the accident, is largely a matter of chance. It is influenced by the number of persons involved in the accident, their age, physical condition, location in the vehicle, and numerous other factors.

It has therefore been considered advisable to present some statistics in which the analysis is based primarily on the number of accidents. Table No. 3 shows all motor vehicle accidents reported in New York State in the years 1936 to 1944. Figures for accidents involving property damage only are not shown prior to 1942, since statistics on this type of accident became available only after the New York State Financial Responsibility Law became effective.

Accident rates per ten thousand registrations and per one hundred million vehicle miles as well as deaths per one hundred accidents and injuries per one hundred accidents are shown in Table No. 4.

A comparison of pedestrian accidents with other than pedestrian accidents is shown in Table No. 5.

The geographical distribution of accidents in the State is shown in Table No. 6.

It will be noted that the gratifying decline in the total number of accidents during the war years has been accompanied by a decline in registration and vehicular miles. To determine accurately whether

TABLE NO. 3

ALL MOTOR VEHICLE ACCIDENTS						
YEAR	ACCIDENTS INVOLVING DEATH OR INJURY				ACCIDENTS INVOLVING PROPERTY DAMAGE ONLY	TOTAL ALL ACCIDENTS
	Number Deaths	Number Injuries	Number Accidents	Compared With 1936		
1936	2,762	101,402	78,901	100 %		
1937	3,065	106,482	82,085	104 %		
1938	2,528	96,418	74,125	94 %		
1939	2,429	95,946	73,442	93 %		
1940	2,452	94,829	72,433	92 %		
1941	2,661	98,845	74,675	95 %		
1942	2,184	87,172	68,433	87 %	73,023	141,456
1943	1,765	60,133	47,271	60 %	48,757	96,028
1944	1,584	65,566	50,463	64 %	60,367	110,830

NOTE: N.Y.S. Financial Responsibility Law requiring that all motor vehicle accidents with property damage of $25.00 or more be reported, became effective January 1, 1942.

TABLE NO. 4

MOTOR VEHICLE ACCIDENTS INVOLVING DEATH OR PERSONAL INJURY						
YEAR	RATE PER 10,000 REGISTRATIONS	COMPARED WITH 1936	RATE PER 100 MILLION VEHICLE MILES	COMPARED WITH 1936	DEATHS PER 100 ACCIDENTS	INJURIES PER 100 ACCIDENTS
1936	317.78	100 %	351.6	100 %	3.50	128.52
1937	316.66	99 %	348.6	99 %	3.73	129.72
1938	283.38	89 %	317.2	90 %	3.41	130.08
1939	273.18	86 %	299.4	85 %	3.31	130.64
1940	260.16	82 %	283.8	81 %	3.39	130.92
1941	257.12	81 %	283.0	80 %	3.56	132.37
1942	260.07	82 %	354.1	101 %	3.19	127.38
1943	205.40	65 %	319.5	91 %	3.73	127.21
1944	220.36	69 %	323.0	92 %	3.14	129.93

TABLE NO. 5

MOTOR VEHICLE ACCIDENTS
INVOLVING DEATH OR PERSONAL INJURY

YEAR	PEDESTRIAN	COMPARED WITH 1936	OTHER THAN PEDESTRIAN	COMPARED WITH 1936	RATIO PEDESTRIAN TO NON PEDESTRIAN
1936	36,033	100 %	42,868	100 %	1 : 1.19
1937	36,072	100 %	46,013	107 %	1 : 1.28
1938	32,241	90 %	41,884	98 %	1 : 1.30
1939	31,403	87 %	42,039	98 %	1 : 1.34
1940	30,362	84 %	42,071	98 %	1 : 1.39
1941	29,774	83 %	44,901	105 %	1 : 1.51
1942	27,302	76 %	41,131	96 %	1 : 1.51
1943	20,445	57 %	26,826	63 %	1 : 1.31
1944	21,079	58 %	29,384	68 %	1 : 1.39

TABLE NO. 6

GEOGRAPHICAL DISTRIBUTION OF ACCIDENTS
INVOLVING DEATH OR INJURY

YEAR	GREATER N.Y.		OTHER CITIES		RURAL/	
	Number	% of Total	Number	% of Total	Number	% of Total
1937	48,445	59 %	15,888	19 %	17,752	22 %
1938	44,037	59 %	13,786	19 %	16,302	22 %
1939	43,023	59 %	14,141	19 %	16,278	22 %
1940	41,549	58 %	13,961	19 %	16,923	23 %
1941	40,086	54 %	15,818	21 %	18,771	25 %
1942	34,268	50 %	18,517	27 %	15,648	23 %
1943	22,770	48 %	13,703	29 %	10,798	23 %
1944	24,805	49 %	14,068	28 %	11,590	23 %

(1) Includes Incorporated Villages.

conditions leading to accidents have become better or worse would require evaluation of the number of accidents in terms of degree of exposure. Information from which the degree of exposure or accident probability could be approximated with any degree of accuracy is not available. However, it is almost certain that the reduction in the number of accidents is not in proper proportion to the reduction in vehicular mileage.

STANDARDS AND UNIFORMITY

In the regulation of motor vehicle traffic it is of extreme importance that the devices used for this purpose be standardized in design and that they be scientifically applied in a uniform manner, at all points where studies indicate their necessity. The Traffic Commission has given and is continuing to give considerable attention to this point.

In general, it follows national standards, as outlined in the Manual on Uniform Traffic Control Devices of the American Association of State Highway Officials. There are two important exceptions to this statement.

The Commission does not agree that the best location for a traffic signal is at the side of the road. Its standards therefore require that the signal be suspended over the center of the pavement with a clearance of 14'6". In this position the motorist does not have to take his eyes off the road to hunt for the signal, which does not compete for attention with other electric signs, and which can not be obscured by parked trucks.

The Commission also disagrees with national standards for pavement marking. The standards which it follows were developed by the Division of Highways in 1939, and approved by the Commission. In 1939 approximately 6,500 miles of the State System were marked according to these standards, and thorough studies were made of their effectiveness. These studies, and the complete acceptance of the markings by the public, confirm the Commission's belief that they provide the best possible guidance and protection to motorists. When the national standards for pavement marking were adopted, they were carefully compared with the standards followed by the Commission. It was decided that in the points of difference, the New York State System provides better protection to the motorist, and the Commission does not consider it advisable to change from its present practice. It is important to note in this connection, that the Commission's standards cover the complete marking of the entire length of a highway, on tangents, as well as on curves and hills. Under normal conditions, when material is available, over 9,000 miles of the State System are marked according to these standards each year.

The Commission has issued the following Manuals, which specifically detail the type, location, and conditions of use of the various traffic devices covered.

STANDARD PAVEMENT MARKINGS
STANDARD ROUTE MARKERS
STANDARDS FOR ROADSIDE REFLECTOR INSTALLATION
STANDARD HIGHWAY SIGNS (Tentative)

The Manual of Standard Highway Signs is not complete. This Manual will be revised and completed, and the entire set of Manuals will be issued in one volume, with additional matter as may be necessary.

Standardization can only lay down principles. To insure that these principles are applied uniformly throughout the State, it is necessary to obtain a uniformity in thinking among the men who will apply them. To this end, the Commission holds Joint Meetings of the Traffic Engineers of the Department of Public Works and the Traffic Supervisors of the State Police, supplemented by circular letters issued from time to time. It has been the endeavor of the Commission to hold these meetings twice a year, but war conditions have made it impossible to hold them as frequently as this during the past several years. They are of great value in instructing both the staff of the Commission and the men in the field in the handling and solution of traffic problems, and will be continued.

SIGNALS

In order to conserve gasoline and tires by eliminating the unnecessary stopping of traffic, the Commission has maintained a continuous study of all signals under its jurisdiction and has removed or changed to flashing operation all those which became unnecessary because of the drop in traffic volumes or change in the traffic pattern. Beginning in 1942, and continuing to the present time, 76 signals on the State System of Highways have been removed and over 500 changes in type of operation have been made to meet wartime conditions.

During this period 47 new signals were installed, practically all in the vicinity of war plants, or at intersections at which the traffic flow has been increased by the influence of new or enlarged in dustrial establishments.

Frequent observations made at the locations where signals were removed or changed in operation show a considerable decrease in unnecessary stops. These studies also indicate that no hazards were created, and this is confirmed by the almost total lack of protests from the general public.

The question of traffic signals during blackouts presented a considerable problem. A popular method of meeting the situation, adopted by most local authorities, was to obscure the signal lens with a mask having a small opening in the shape of a cross, the signal remaining illuminated during blackouts. The Commission opposed this practice, as it felt that the probability of accident due to difficulty in observing the

signal indication, especially during the daytime, outweighed the probable casualties which might be caused by air raids. It therefore decided that signals should be extinguished during blackouts, and operated with normal illumination at all other times.

At first, an attempt was made to have this done by employees of the Department of Public Works. This was soon proved to be impractical. Key switches were therefore installed at all signals under the jurisdiction of the Commission, to permit the extinguishing of the signal light without access to the control mechanism. By agreement with the State Director of Civilian Protection keys were furnished to local air raid wardens who became responsible for turning off the signals at the beginning of the blackout and returning them to operation at the end. The switches were installed during the summer of 1942.

To provide a record of periods when the signal was out of operation, a form was prepared with blanks to insert the date and hour at which the signal was turned off and on, and the name of the person per forming the operation. This form was printed on post-cards and issued to those possessing keys to the signal switches, who were required to fill out the form and mail it to the Department of Public Works each time that the operation of the signal was interrupted.

The plan worked out very satisfactorily, and prac-tically no vandalism occurred.

In the spring of 1942 the Second Service Command issued orders that all lights visible from the sea be dimmed. To meet this requirement, 15 watt lamps were substituted for the standard lamps in signals in the dim-out area, during the period that the dim-out order was in effect.

It has long been the practice of the Commission to discontinue, or change to flashing operation, signals at intersections where the volume of traffic during the winter season becomes reduced to the point below that which warrants control by a signal. While some saving in cost is effected, the primary reason is to follow the general principle that signals should not be operated except where needed by traffic conditions, in order that respect and obedience to them be obtained. The number of signals placed on winter operation from 1942 on was considerably lower than in previous years, due to the fact that changes made to meet wartime conditions have eliminated many signals whose value decreased in the winter season.

On highways carrying a heavy traffic volume, with numerous secondary roads intersecting at grade, the only satisfactory method of maintaining an orderly flow of traffic, and obtaining maximum capacity of the highway, is by the use of a progressive system of signals. There are at present two such signal systems on the State System of Highways.

One is located on the Sunrise Highway, Route 27, in the Village of Lynnbrook, Nassau County. This is a traffic actuated

progressive system consisting of five signals. It was placed in operation in January 1939.

The other is located on the Jericho Turnpike, Route 25, between Floral Park and Mineola, Nassau County. This is a flexible progressive system consisting of 14 fixed time signals. The system is controlled by one master control which has a program clock to provide for different cycle lengths between predetermined times of the days, and for separate programs to be used on weekends. It was placed in operation in March 1941.

There are a number of other locations in the State where similar signal systems could be used to great advantage, and consideration will be given to these when equipment again becomes available.

The signal installation on Route 17 at its intersection with Route US 6 in Orange County is worthy of inclusion in this report. This 3-way intersection had long been a congestion point, causing delay to Route 17 traffic and even more delay to Route US 6 traffic. Both routes carry heavy volumes of traffic, especially on weekends and holidays.

To facilitate the movement of traffic through the intersection, a new type of vehicle actuated signal control was installed in May 1941. This control adjusts itself to and takes advantage of variations in traffic volume, relative densities of traffic on the two phases, and the total elapsed time between actuation and assignment of the right-of-way. It automatically balances the known car seconds of delay in the street having the red indication against the car seconds of the delay which would result, were moving traffic to be stopped on the street having the green indication.

Its operation was studied for a considerable period after its installation, including the heavy traffic of Memorial and Independence Day weekends, and was found to be most effective. Congestion at the intersection has been reduced to the point where it can safely be said that a serious traffic problem has been eliminated.

PAVEMENT MARKING

Beginning in 1939, a program was started for marking the more important pavements on the State System according to standards adopted by the Commission. The principle followed in setting up the program was that major routes selected for marking would be marked continuously throughout their entire length, and that the marking on all other highways on the program would be marked continuously between two well-defined termini. The highways selected for marking were integrated into a complete system of marked highways on a State-wide basis.

The original program as adopted in 1939 covered 6500 miles out of the approximate 13,000 miles on the State System. At the end

of the year the value of the markings was so apparent that the program was considerably increased. Mileages marked since the inception of the program follow.

YEAR	MILES OF HIGHWAY MARKED	GALLONS PAINT USED
1939	6,488	65,434
1940	8,887	87,338
1941	9,164	103,834
1942	8,138	39,215
1943	7,062	31,045
1944	5,066	19,341

It will be noted that beginning in 1942, the mileage of pavement marking was considerably decreased. The reduction in marking is even better illustrated by the decrease in the amount of paint used in these years, since lane marking has been temporarily eliminated, beginning in 1942, and on this basis a mile of pavement is reported as marked even though only the No Passing zones were painted.

The reason for this decrease is the fact that war conditions made it impossible to obtain pavement marking paint, and it was necessary to conserve the stocks of paint on hand in 1941 in order that essential marking might be continued during succeeding years. The Department of Public Works has recently been successful in obtaining approximately 66,000 gallons of paint which should be available for the 1945 season, and 75% of the normal program will be painted in that year. As soon as sufficient material of good quality becomes available, it is the intention to completely paint the entire program each year, since it is the opinion of the Commission that there is no other single factor which has a greater effect on the reduction of the accident rate than a well designed and properly maintained system of pavement marking.

The Commission has issued a pamphlet entitled "Signs, Signals and Markings on the New York State System of Highways" which will be sent without charge to those interested. For this reason, a detailed description in this report of the system of pavement markings is unnecessary. However, attention is invited to the fact that the system requires that the whole length of the highway be marked, on tangents as well as on curves or hills, with the exception of those two-lane concrete pavements on which a well-defined center joint is clearly visible.

Most systems of pavement marking do not include the marking of tangents, but it is the Commission's experience that the orderly flow of traffic obtained by marking traffic lanes is worth the additional cost. The markings used to define traffic lanes consist of a broken line 4 inches wide, paint being applied in 15 feet lengths, with intervals of 25 feet. The use of this broken line effects a considerable economy in paint, since a mile of 4 inch solid line requires 13 gallons of

paint, whereas a mile of 4 inch broken line requires only 4.9 gallons of paint. The broken line is not inferior in visibility to the solid line.

SIGNS

Considerable time has been devoted to the design of a complete series of highway signs and the preparation of standards for their use. Before the design for a new sign is accepted, a sample sign is made and tested for visibility and legibility under day and night conditions. Unless the sample sign is visible at 600 feet and legible at a minimum of 250 feet, both day and night, the design is rejected.

If a sign is to be of any value it will attract the driver's attention away from the road. In so far as it succeeds in this purpose it introduces an element of danger. Every effort is therefore made in the design of these signs to reduce the message to the smallest number of words which will serve the purpose, with symbols employed instead of a legend wherever possible, in order that the driver's attention be distracted from the highway for a minimum length of time.

If a sign is not considered of sufficient importance to be read by a motorist by night as well as by day, it has little place on the highway. For this reason practically all of the signs approved by the Commission are reflectorized. The exceptions are mostly those installed in well-lighted areas where visibility is ample without reflectorization, and those which have daytime application only.

A careful study has been made of the conditions under which each approved sign should be used, and to determine its proper location. Detailed instructions on these points for each sign are included in the Manual of Standard Highway Signs prepared by the Commission.

With the exception of certain signs which are of sufficient importance that their need should be reviewed by the Commission before erection, approved signs in the Manual may be erected by the Department of Public Works without reference to the Commission, provided that the prescribed conditions of use and location are followed.

As an example of approved standards, warning signs are placed at a distance of 300 feet from the point of hazard. With a minimum legibility of 250 feet, the driver will be able to start reading the sign at a distance of 550 feet before he reaches the point where his response must be completed. At 40 MPH this is between 9 and 10 seconds, which is not excessive when reading, comprehension, and reaction times, as well as higher speeds, are taken into account.

Since 1938, all new signs installed upon the State System have conformed to the approved standards. However, this does not take care of the large quantity of signs of obsolete types already in place.

In 1940 a program was therefore started for signing 1600 miles of the State System of Highways according to the Traffic Commission standards. In 1941 an additional 1300 miles was added to the program. This is a larger task than might appear at first glance. It involves a survey of the roads to be re-signed to determine new signs which should be added and their proper locations, existing signs which should be replaced with new type signs or which should be relocated, and unnecessary signs which should be removed. The field work involved in making these changes, after the survey has been completed, is considerable.

However, material and labor shortages made it necessary to issue instructions in the middle of 1941 that the program be suspended, only a comparatively small portion having been completed. At the same time, instructions were issued to the District Engineers of the State Department of Public Works to limit their requisitions for new signs to those which were absolutely essential.

The column headed NEW SIGNS in Table No. 8 indicates the effect of this order.

The obedience of a motorist to a sign is to some extent in direct proportion to the condition of the sign. A battered, rusty, or illegible sign is generally assumed to be one which the authority responsible for its erection does not consider very necessary. On the other hand, if the sign is maintained in good condition the motorist is impressed with the belief that the authority responsible considers that there is a real need for the sign. In addition to this, the public impression of the efficiency with which a highway is maintained is dependent almost as much on its appearance as on the condition of the pavement.

For this reason, considerable attention is paid to keeping the signs along the highways in good condition. To the extent possible under the present shortage of labor, all signs which are damaged or which have a bad appearance are replaced, the old signs being sent to the Hamburg Sign Shop in District No. 5 of the State Department of Public Works for reconditioning. In this shop the old paint is stripped, the metal is treated to obtain adhesion of paint, and the sign is finished in baked enamel. Inefficient reflector buttons are replaced with new ones, and damaged signs are repaired or scrapped. When the reconditioning process is finished, the sign has every appearance, and has the life, of a new sign.

The last two columns in Table No. 8 show the amount of this work which has been done since 1940, the first year in which the Hamburg Sign Shop was in full operation. The quantities would be larger were it not for the shortage of labor, and will probably increase considerably in the years immediately following the close of the war. However, the life of the signs manufactured and reconditioned at Hamburg is so much greater than the life of the signs formerly obtained by purchase, that it may be anticipated that the number of signs reconditioned per year will decrease after the old signs on the highways have passed through this process or have been replaced by new ones.

STOP SIGNS

Formerly, the authority for the erection of signs requiring traffic to come to a stop before entering a highway on the State System was vested in the Superintendent of Public Works. By section 95d of the Vehicle & Traffic Law, this authority was transferred to the Traffic Commission on September 1, 1936. Those signs in place on that date were taken over by a blanket order of the Traffic Commission. Since then an order issued by the Commission is required before a STOP sign controlling traffic entering the State System of Highways may be erected or removed.

Because failure to obey a STOP sign is punishable by fine or imprisonment, the legal status of such sign is of considerable importance. Due to the large number of STOP signs in place, and the fact that in many instances no record was kept of their erection prior to September 1, 1936, it was frequently difficult to establish the authority under which a STOP sign was erected. In addition, the practice followed in the use of STOP signs has changed considerably in recent years. It was once thought desirable to place a STOP sign on every highway intersecting a main highway. However, experience has shown that on purely local roads, which are generally used by persons familiar with the territory, and where the difference in character of the two roads indicates clearly that a main highway is being entered, a STOP sign is of little value. Under such conditions, drivers almost invariably exercise caution before entering the main highway, and a STOP sign not only is unnecessary, but either adds to the work of enforcement or its enforcement is neglected at the expense of obedience to necessary STOP signs.

In February 1942, the Commission therefore decided to review all STOP signs on highways entering the State System. Many were ordered removed, and Traffic Commission orders were issued to confirm the legal status of those which upon investigation were found to be necessary.

This involved a very considerable amount of work, especially since it was also important to take into account the condition which existed in cases where STOP signs had been removed without proper authority. It was necessary to clear up this situation as well, since the State Department of Public Works might have been held liable, in the event of an accident, for failure to maintain a sign ordered by the Commission.

Between May 1, 1942, the beginning of the program, and December 18, 1944, when the program was completed, orders were issued for the removal of 1,288 STOP signs. In the same period orders were issued for the erection of 190 new STOP signs, in addition to orders covering all STOP signs in place and found to be needed. The majority of the orders for new STOP signs were issued to cover locations at which the investigation disclosed them to be necessary and not in place, and the balance were issued to take care of changed traffic conditions. As of December 31, 1944, there are 10,684 STOP signs in place on roads entering the State System, all covered by Traffic Commission orders.

ROUTE MARKERS

Route markers must be considered separately from other types of signs. New York State touring routes have been fairly well marked for some time. The possibilities of assisting motorists to reach their destinations without confusion and of preventing accidents caused by drivers uncertain of their turns at intersections, by the use of a complete and carefully detailed system of route markers were not, however, utilized to their fullest extent. A set of standards, including instructions prescribing in detail the location of every type of marker, was therefore developed in the spring of 1940.

The work of bringing the route markers on the 13,000 miles of the State System into conformance with these standards was started immediately thereafter. A large part of the work has been completed. Delay in obtaining route markers and the shortages of labor which developed before the installation was finished has made it impossible to fully complete this work. The markers have all been delivered, and the balance will be erected as soon as labor conditions become normal.

An idea of the number of route markers required for this purpose can be obtained from the column headed NEW ROUTE MARKERS, in Table No. 8, although some of these were purchased for replacement and stock. The sharp reduction in the number received during 1942, 1943 and 1944 does not have the same meaning as the similar reduction in the figures for other new signs, but is instead an indication that the quantity required has been delivered.

TABLE NO. 8

NEW AND RECONDITIONED SIGNS				
Year	New Signs	New Route Markers	Recond. Signs	Recond. Rt.Markers
1940	3936	26493	1831	20925
1941	8929	19466	2172	20073
1942	6721	3693	2198	14257
1943	2177	247	1256	10292
1944	2779	12	2288	13581
Total	24542	50111	9745	79128

SPEED ZONES

The action of the Legislature in amending section 56 of the Vehicle & Traffic Law, which became effective April 21, 1942, to establish an absolute speed limit of 40 MPH, and the subsequent action taken by the War Council in establishing an absolute speed limit of 35 MPH, this being effective September 22, 1942 and later confirmed by action of the Legislature,

made necessary an examination of all speed zones established by the Commission in which the speed was limited to 35 or 40 MPH. All zones posted for 40 MPH were suspended. The same blanket action was not taken with regard to 35 MPH zones. It was the opinion of the State Police that in some locations these speed zones were of assistance in obtaining obedience to the State-wide speed limit. All 35 MPH zones were investigated, and many suspended. Some, however, were continued or the speed limit was reduced.

PARKING ZONES

Congested traffic conditions have made necessary the establishment of parking regulations in numerous areas in the vicinity of war plants. The Commission has in mind the fact that parking regulations thus established are in most cases temporary in nature, and is maintaining a review of conditions, and changing or discontinuing such regulations as the situation changes.

There are many locations in the State System where parking should be prohibited, or otherwise regulated, in order to obtain the full capacity of the highway. Unfortunately, local authorities do not always see eye to eye with the Commission in this matter, since many merchants are under the false impression that their volume of business is dependent upon unrestricted parking.

It is difficult, if not impossible, to enforce a parking regulation which does not have the support of municipal authorities, and the Commission has hesitated to take action in such cases. The increased traffic volume which may be expected after the war will probably require a change in this attitude, and it is hoped that the facts of the situation will at that time bring about a change in local opinion.

PERMITS

Traffic signals, signs and markings may not be installed upon the State System of Highways without authority of the Traffic Commission. In general, such traffic control devices as may be necessary are installed by the Department of Public Works upon order of the Traffic Commission. In a few instances, where the expenditure of State monies for such purpose is prohibited by law, or where the device is primarily for the benefit of private interests, the Commission issues permits for their installation. The permits require that the installation conform to standards of the Commission, and the cost of installation and maintenance be borne by the applicant. Such permits are issued only after the Commission has satisfied itself by investigation that a reasonable need exists, and that the orderly and safe flow of traffic on the highway will not be adversely affected.

The following are types of installation for which permits are usually issued:

SCHOOL SIGNALS
FIRE-HOUSE SIGNALS
INDUSTRIAL SIGNALS
PORTABLE SCHOOL SIGNS
SIGNS AT ENTRANCES TO INDUSTRIAL AND PRIVATE ESTABLISHMENTS

PUBLICITY

A booklet entitled "Creating Safer Communities" was issued in 1937 and distributed to communities throughout the State. In 1939 the Commission sponsored a text-book for use in high schools, entltled "Man and the Motor Car", which is in fairly general use in teaching safety education in the schools of the State.

In June 1939 the Commission prepared a booklet entitled "Signs, Signals and Markings on the New York State System of Highways", which was printed at the expense of the Division of Highways. This booklet describes the meaning and purpose of signs, and goes into considerable detail to explain the system of pavement markings, which was used for the first time that year. The original edition of 75,000 copies was quickly exhausted, and another edition of 75,000 copies was printed in December 1939.

A small sum of money for printing safety pamphlets was included in the Division of Highways budget for the fiscal year ending 1941. Using this money, the Commission prepared and issued a pamphlet "Teaching Safety to Young Pedestrians and Bicyclists". 75,000 copies were printed and distributed through the State Education Department.

While all of this has been helpful, the Commission itself has not had the funds to maintain a continuous and constructive program of public education in highway safety through publicity. However, the Bureau of Motor Vehicles, through the distribution of literature and statistics, and by radio broadcasts and safety talks before community organizations, has performed very effective work along these lines.

Troopers of the Division of State Police have given safety talks to gatherings of school children and to local organizations. The value of these can not be over-estimated.

DRIVER TRAINING PROGRAM

Section 95g of the Vehicle & Traffic Law authorizes the Traffic Commission to conduct a driver training program as an aid to the national defense. Such a program was conducted in 1943 and 1944 as a War Transportation Committee project, in cooperation with the State Office of War Training. It is discussed more fully in the report of the War Transportation Committee.

TRUCK AND BUS INVENTORY

Under section 95g of the Vehicle & Traffic Law, the Commission is authorized to take an inventory of trucks and buses in the State, which will be available in case of emergency affecting the national defense. At the request of the War Department, transmitted through the Highway Traffic Advisory Committee to the War Department, such an inventory was taken in 1942, and again in 1943.

The 1942 inventory, having been started after the bulk of motor vehicle registrations were made, was conducted by mail. It was handled by the Bureau of Motor Vehicles as a W.P.A. project. Equipment, housing and supervision was furnished by the Bureau of Motor Vehicles, with supplies such as envelopes, blanks, postage, etc., being furnished by the Federal Government. A vigorous follow-up campaign was conducted to obtain information from those who failed to answer the first request, and ultimately information was obtained from practically all of the truck and bus owners in the State.

Inventory cards for 1942 were processed on a nation wide basis by the Federal Government and returned. They were then filed and indexed according to location of vehicle, and are at present in the offices of the Bureau of Motor Vehicles.

At the request of the War Department a similar inventory was conducted in 1943. This inventory was not taken by mail, but having been planned ahead of the beginning of the year, all persons registering trucks and buses in 1943 were required to fill out a card at the time application was made for registration. The W.P.A. project having been discontinued in the first part of the year, it was not possible to sort and index the cards constituting the 1943 inventory.

RULES AND REGULATIONS

Under section 95h of the Vehicle & Traffic Law, the Commission has the power to adopt rules and regulations as it may deem necessary to effectively accomplish and enforce the purposes for which it was established. Only one such rule has been adopted by the Commission. This Rule, which became effective December 16, 1936, is quoted below:

Rule No. 1

"Every driver of a vehicle upon a public highway shall comply with the instructions conveyed by any stop, speed, slow, caution, movement, alignment, exclusion, restriction, parking or other regulatory sign, signal or marking established or maintained by or with the authority of the State Traffic Commission."

LEGISLATION

The Commission has prepared bills for consideration by the Legislature of 1945, to effect the following changes in existing law.

1. To make the expiration of the present 35 MPH speed limit dependent upon action by the State War Council after the rescission of the Federal order limiting speed to 35 MPH, instead of a calendar date.

2. To provide for straight through movement in addition to right and left turns, on a green arrow attached to a traffic signal. To permit the green arrow to be located elsewhere than at the base of a traffic signal.

3. To make obedience to traffic signals mandatory.

4. To require Traffic Commission approval before State highways may be designated as highways in which vehicles shall pass in one direction only, or from which heavy trucks shall be excluded; to authorize the Traffic Commission to take such action on State highways; and to authorize the Traffic Commission to make such designation upon request of the County Superintendent of Highways and the Town Board on county roads and town highways where no authority now exists in law for such action.

5. To simplify the erection of STOP signs by municipal authorities.

6. To substitute "empowered" for "employed", which is incorrectly used in section 90 par. 4 of the Vehicle & Traffic Law.

7. To clarify the law with regard to payment of the cost of erection and maintenance of signs, signals and markings.

8. To require obedience to pavement markings installed by or with the authority of the Traffic Commission.

9. To provide a means whereby parking may be restricted or prohibited upon highways where no authority for such action now exists.

10. To authorize the Traffic Commission to erect signs on highways intersecting State highways to regulate traffic entering such State highway.

11. To prevent the creation of a dangerous condition on pavements caused by the careless deposit of materials thereon.

In addition, a recommendation will be made either by the Department of Public Works or by the Commission to amend section 95 of the Vehicle & Traffic Law, to substitute the Superintendent of Operation and Maintenance of the State Department of Public Works as a member of the Traffic Commission in place of the Commissioner of Highways.

STATE DEPARTMENT OF PUBLIC WORKS

The State Department of Public Works is the agency which installs traffic control devices on the State System of Highways, according to orders of the Traffic Commission, and standards established by it. To complete the picture of what is being done on the State System to improve traffic flow and eliminate accidents, a report on the activities of the Department of Public Works in this field is included as an Appendix to this report.

WAR TRANSPORTATION COMMITTEE

Since so much of the work of the Traffic Commission is intimately connected with the work of the War Transportation Committee, knowledge of the activities of the latter Committee is essential to a complete understanding of the Traffic Commission's activities in the past few years. The report of the War Transportation Committee, which follows, is included for this reason.

MEMBERS

OF THE

NEW YORK STATE
WAR TRANSPORTATION COMMITTEE

Clifford J. Fletcher, Chairman
Commissioner of Motor Vehicles

Dr. George M. Wiley
Associate Commissioner
Department of Education

John A. Gaffney
Superintendent of State Police

James J. McNicholas
General Manager
Queens-Nassau Transit Lines,Inc.

Harvey O. Schermerhorn
Acting Chief Engineer
Department of Public Works

R. C. Georger, Director
Director
State Traffic Commission

NOTE: The Honorable Carroll E. Mealey was Chairman until succeeded by the Honorable Clifford J. Fletcher on March 16, 1943. The Honorable John Splain was a member until February 17, 1943. Major John A. Warner was a member until January 12, 1944, when he was succeeded by Captain John A. Gaffney. Mr. J.F. Fitzgerald was a member until April 5, 1943.

MEMBERS
OF THE
METROPOLITAN DEFENSE TRANSPORT COMMITTEE

	REPRESENTING
Billings Wilson, Chairman Director of Operations	The Port of New York Authority
Leonard Dreyfuss, Vice Chairman Chairman, East Coast Conference of State Defense Directors	The State of New Jersey
Clifford J. Fletcher, Secretary Chairman, War Transportation Committee	The State of New York
Newbold Morris President of the Council	The City of New York
Col. E. C. O. Thomas Director of Civilian Protection	The State of New York
Ralph Goodsell State Defense Council	The State of Connecticut

LIAISON MEMBERS

Col. E. C. R. Lasher Zone Transportation Officer	Headquarters, Second Transportation Zone
Lt. Col. B. W. Beers Chief, Security Branch Security & Intelligence Division	2nd Service Command Headquarters
Major H. H. Bittner, T. C. Chief, Security & Defense Branches	N. Y. Port of Embarkation
Major H. R. Nyeberg Highway Branch	N. Y. Port of Embarkation
P. N. Simmons Regional Director Highway Transport Department	Office of Defense Transportation
John Farrell Deputy Director, Eastern District Office of Civilian Protection	The State of New York

REPORT OF THE WAR TRANSPORTATION COMMITTEE

OF THE NEW YORK STATE WAR COUNCIL

HISTORY

At the request of the Secretary of War, the Governor appointed, in February 1941, a Highway Traffic Advisory Committee to the War Department. Since members of this Committee were the members of the State Traffic Commission, the duties of the Committee were carried out as an activity of the Traffic Commission, under the name of Defense Highway Traffic Committee, as this title appeared to be more indicative of its functions. The decision to have the Traffic Commission carry out this work was confirmed by the Legislature of 1941, which, by an amendment to the Vehicle and Traffic Law, authorized the Traffic Commission, in matters having to do with highway traffic as affected by national defense, to cooperate with agencies of this and other States and of the Federal Government; to coordinate the activities of the Departments of the State Government from which Commission members are named; to solicit the cooperation of officials of the political subdivisions of the State in the execution of plans; and to take an inventory of trucks and buses in the State.

In May, 1941, as a result of a meeting called by this Committee, the Metropolitan Defense Transport Committee was organized to prepare plans on a regional basis for the handling of vehicular traffic under emergency conditions in the New York Metropolitan area. The members of this Committee consisted of representatives of the War Councils of New Jersey and Connecticut, the New York State War Transportation Committee, the City of New York, the Port of New York Authority, and the Regional Office of Civilian Defense. Subsequently there have been added representatives of several branches of the Army, and the Regional Office of Defense Transportation.

At the end of 1941, it was obvious that an extension of its field was necessary and broader powers required, to enable the Traffic Commission to cope with the rapidly deteriorating highway transport situation. On March 26, 1942, the Commission therefore presented to the State War Plans Coordinator a plan for a state-wide program to conserve motor vehicles, gasoline and tires, and to protect business, industry and essential transportation from the effects of the coming shortages in these items. Action upon this recommendation was deferred until the first meeting of the War Council under the revised War Emergency Act. At this meeting, which was held on May 12, 1942, the State War Council took action to place the program into effect by the creation of the War Transportation Committee.

Shortly prior to the meeting, the Governor had received a request from Mr. Joseph B. Eastman, Director of the Office of Defense Transportation, to put into operation a program to conserve gasoline,

tires and motor vehicles, and to stagger hours to reduce the peak load on public transit systems. This plan was much the same as that presented by the Traffic Commission to the War Plans Coordinator in March. However, it did not contemplate the state-wide organization as established in New York State by the War Council, and it lacked authority in connection with bus operation, which was a vital part of the State plan. The experience of the New York State War Transportation Committee clearly indicates that a satisfactory job cannot be done without a sound organization and without taking mass transportation into account.

It is interesting to note that while in the beginning the emphasis was upon voluntary conservation, Federal restrictions upon vehicles, gasoline and tires have replaced to a large extent the voluntary features of the plan. The primary function of the Committee, and one which is most necessary, is the protection of the essential economy of the State from the effect of wartime shortages in transportation, by action to insure that the citizens of the State obtain essential transportation under the conditions created by these shortages.

The War Council has allocated funds for the support of the Committee as follows:

FISCAL YEAR ENDING	ALLOCATED	EXPENDED
March 31, 1943	41,462.85	35,502.51
March 31, 1944	44,450.00	36,446.32
March 31, 1945	37,200.00	

These funds have been used for the employment of personnel, traveling expenses, communication, supplies, etc. The fact that the War Transportation Committee is closely integrated with the Traffic Commission has made it possible to employ in its work much of the personnel, equipment and facilities of the latter, thereby reducing the cost of its operations.

DUTIES AND AUTHORITY

By Resolution No. 29 of the State War Council, dated May 12, 1942, it was made the duty of the War Transportation Committee to promote the conservation of vehicles, gasoline and tires, and the conservation and improvement of transportation, including mass transportation, throughout the State. It was authorized to request and obtain such cooperation, assistance, and data from any Department, Agency, or Official of the State, or any public subdivision thereof, as it may reasonably require, for the consummation of its work. It was made the duty of each local War Council to cooperate with and assist the Committee in carrying out its objectives.

In order to carry out its functions, the Committee has been given the following specific authority by the War Council:

1. It is empowered to issue temporary certificates authorizing the inauguration or the extension of the operation of bus routes, or a change in bus routes, pending final determination by the Public Service Commission.

2. It is empowered to authorize the use of school-owned buses for the transportation of defense and agricultural workers, the armed forces of the Federal and State Governments, and participants in war training classes, and the lease of such school-owned buses to any common carrier operating buses.

3. It is empowered to approve regulations adopted by local War Councils, concerning staggering of hours.

4. It is empowered to regulate charter bus operation.

5. It is empowered to regulate the use of buses for the transportation of children to school.

The War Council has also approved an administrative agreement negotiated by the Committee with the Office of Defense Transportation, which provides in general, that (a) if considered advisable, the War Council will consider for adoption as state orders ODT orders regulating motor vehicles, modified to meet conditions in New York State as agreed upon by the War Transportation Committee and ODT; (b) interpretations of these orders may be made by the War Transportation Committee subject to review by ODT; (c) special permits granting exemptions from these orders may be issued by the War Transportation Committee, subject to review by ODT; (d) plans for joint action shall be jointly approved; (e) the main task of enforcement of the orders will rest upon the state.

Other administrative details are included in the agreement. The intent of this agreement is that in New York State, certain ODT orders will operate as State orders, and that they will be better fitted to conditions in New York State by the modifications worked out by the two agencies and by administration by the War Transportation Committee.

Conforming to this agreement, a number of ODT orders have been adopted by the State War Council as State orders, and the administration of these orders has been delegated to the War Transportation Committee by the State War Council.

ORGANIZATION

The War Transportation Committee is essentially the State Traffic Commission, augmented by the addition of a representative of the bus industry. The State Agencies represented on the Committee are the Bureau of Motor Vehicles, the Department of Public Works, the Division of State Police, and the Department of Education. While the Public Service Commission

is not directly represented, one of the Public Service Commissioners attends the meetings ex officio.

The policy of the Committee is that local problems can best be handled by the Community itself, with the advice and help of the Committee as needed. Each War Council in the State was therefore called upon to appoint an Administrator of War Transportation. This Administrator represents the authority of the appointing War Council, and is the representative of the War Transportation Committee in the area under the jurisdiction of that War Council.

Under the guidance of the Committee, the Administrators have organized transportation committees composed of representatives of all interested groups in the community. In many instances, the Administrators representing a county and the cities within that county, have organized a county committee, with one Administrator as Chairman. This has been recommended wherever possible by the Committee, as it has the advantage of considering transportation problems on a regional basis.

The Committee employs five Field Agents, stationed in Albany, Utica, Syracuse, Rochester, and Buffalo. The New York Metropolitan area is covered by a Field Agent who works on a voluntary basis, and is not paid by the State. This Field Agent was formerly the Director of the Regional Plan Association of New York City. Loss of personnel to the armed services made it necessary for the Regional Plan Association to discontinue this arrangement. The work was taken over by the Port of New York Authority, and is now handled by its Director of Port Development.

The duties of the Field Agents are to make special investigations in areas under their jurisdiction, to stimulate and report on the activities of local Administrators, and to afford them such assistance as may be necessary, both directly and by bringing the State Committee into the picture.

The staff of the Committee consists of a transportation engineer and four clerical employees, who are paid out of War Council funds, plus two school transportation analysts and a draftsman supplied by the State Education Department. In addition, the staff of the Traffic Commission assists to the extent possible in the War Transportation Committee's work. During the first year and a half of the Committee's operation, the Public Service Commission, the Department of Education and the Bureau of Motor Vehicles also assigned one employee to the staff of the Committee, in addition to those listed, on a full time basis. The Director of the Committee is the Secretary of the State Traffic Commission.

Is should be noted that the War Transportation Committee is a cooperative endeavor on the part of the State War Council, the Department of Public Works, the Department of Education, the Bureau of Motor Vehicles, the Division of State Police, and the State Traffic Commission, and that it receives considerable advice and assistance from the Public Service

Commission. The results which it has been able to accomplish are due to this cooperation, and to the strong State and local War Council set-up in New York State, which insures that the local Administrators of War Transportation are men of ability and of good standing in their commmunity, and who have the authority of their local War Council behind them.

LOCAL ORGANIZATION

Since the work of the Committee is principally carried out on the local level, a great deal of attention has been paid to the organization of the Administrators and their Committees. There are 105 Administrators, covering every city and county in the State. In some instances, one Administrator covers a city and a county. Most have well balanced and active Committees. The Administrators are doing an extremely good job of handling the transportation problems of their communities, many in their spare time and without paid assistants. It is extremely gratifying to observe the interest which these men take in their work. The patriotism which moves them to put in long hours after their regular days work is finished, and to take time from their business to handle their work as Administrators, is especially commendable.

Every effort is made to build up the prestige of the Administrators. No action is taken in their communities except through them, and their recommendations are always obtained before applications for bus or charter service are acted upon. By arrangements with the State heads of the OPA and the WMC, they have been placed in touch with the local Rationing Boards and U. S. Employment Offices, and work very closely with these agencies.

To instruct the Administrators and to standardize procedure, a War Transportation Manual was prepared by the Committee and issued to the Administrators and their assistants. This Manual explains in detail all phases of their work.

MASS TRANSPORTATION

The Administrative agreement between the Committee and the Office of Defense Transportation has already been discussed under the subject DUTIES AND AUTHORITY. The policy of the Committee is that its assistance and cooperation should be available to ODT to the fullest extent possible, to the end that ODT policies and regulations governing motor vehicles be adapted to New York State conditions, and administered in the State by the War Transportation Committee, a State authority, instead of by a Federal authority. As a result, it can be said that the impact of ODT regulations have been cushioned to the citizens of this State to a larger extent than in any other State of which the Committee has knowledge, and that at the same time motor vehicle transport has been effectively conserved.

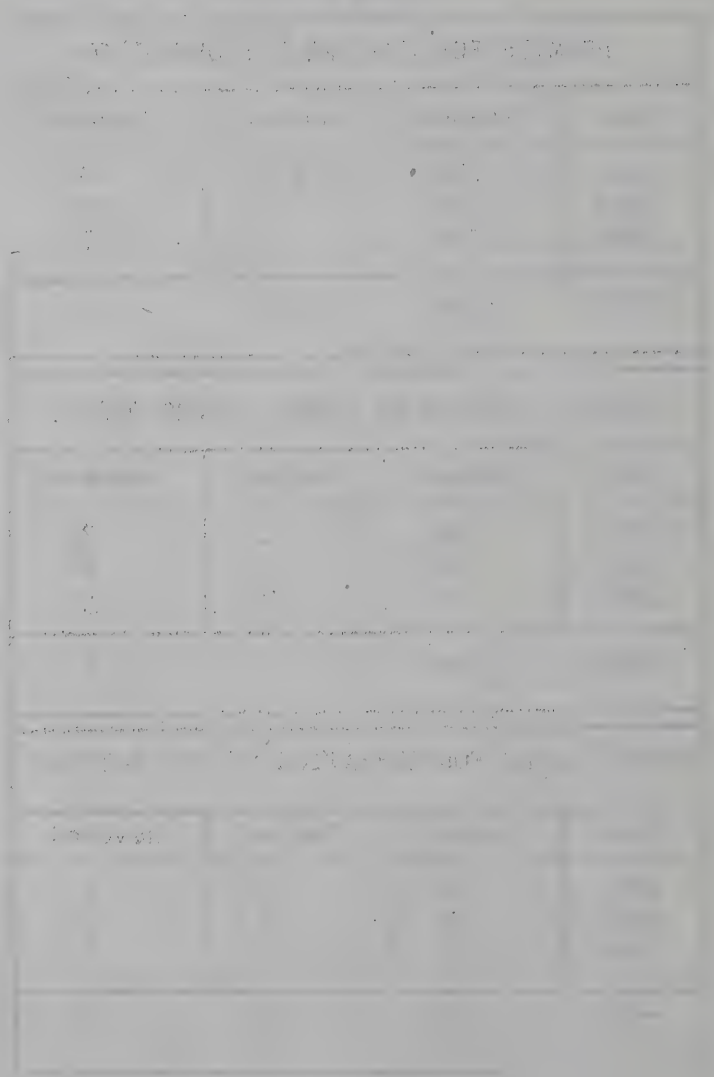
The authority which the Committee possesses to authorize the temporary operation of new bus lines or the extension of existing bus

TABLE NO. 9

PERMITS FOR CHARTER BUS OPERATION			
Year	Issued	Denied	Revoked
1942	112	123	0
1943	504	74	39
1944	774	59	41
TOTAL	1390	256	80

PERMITS FOR USE OF SCHOOL OWNED BUSES			
Year	Issued	Denied	Revoked
1942	16	1	3
1943	40	5	0
1944	48	2	5
TOTAL	104	8	8

CERTIFICATES FOR OPERATION OF BUS ROUTES			
Year	Issued	Denied	Revoked
1942	80	33	0
1943	61	11	3
1944	23	6	1
TOTAL	164	50	4



lines, and the operation of charter buses, has been of great value in meeting war worker transportation problems in the State. Under these powers, it has been possible for local Administrators, with the assistance and approval of the Committee, to provide mass transportation to war industries as needed. In areas where transportation problems are acute, local Administrators are keeping in touch with the situation, and are making such recommendations to the Committee as may be necessary to provide relief.

In addition, studies of transportation conditions have been made by the Committee and its staff in numerous locations throughout the State. Corrective measures which have been taken include additional transportation service, securing additional buses, rerouting buses, staggering of hours, etc. The Committee's advice and assistance has been sought by the War Manpower Commission on numerous transportation problems bearing on the labor supply market. In a number of instances the Committee was able to alleviate or remedy the situation.

Conferences have been held with officers of the Army Transportation Corps relative to bus service at various army installations throughout the State. Activities of the Committee have resulted in providing a remedy for many of the specific problems.

Numerous other problems affecting mass transportation are the subject of the Committee's work. For example, draft deferment of bus drivers and mechanics, assistance to operators with ODT problems, elimination of unnecessary vehicular stops, special transportation of agricultural workers, liaison between supply and demand for new buses, priority ratings for acquisition of parts, rates of fares, schedule preparation, compliance with safety rules, etc.

In order that the activities of the Committee with relation to mass transportation be fitted to the best interests of the bus industry, to the extent possible under wartime conditions, it has formed a Motor Bus Advisory Committee to advise and assist it in its work. The members of the Advisory Committee were appointed upon recommendation of the different associations of bus operators, and form a representative cross-section of the industry. In selecting the members, care was also taken to obtain reasonably balanced distribution throughout the State. This Committee has been of great assistance to the War Transportation Committee in its problems.

Table No. 9 lists action taken by the Committee with regard to the operation of buses.

SCHOOL BUS TRANSPORTATION

There are approximately 3200 school buses in the State, of which more than 2000 are publicly owned. The normal replacement of these school buses would average around 600 per year. The actual replacement during the war years has been as follows:

YEAR	NEW SCHOOL BUSES
1942	0
1943	2
1944	121
1945	300 (estimated)

From these figures it is apparent that school transportation must be maintained during the war with essentially the same buses which were in operation in 1941. To conserve these buses for such use, to extend their life over the period of the war, and to insure that the necessary transportation of school children will continue, it became necessary that school transportation be placed upon the most efficient and economical basis possible.

ODT therefore issued regulations in the fall of 1942, regulating the transportation of children to school, the purpose of which was to eliminate all school transportation but that which is essential to enable children to obtain their education. At the request of the ODT, and in agreement with the State Department of Education, the Committee drafted a proposed order regulating school transportation in the State. Local school authorities and associations representing the different classes of schools were consulted in the preparation of this draft. It was approved by the War Council and issued as Order No. 14, effective February 9, 1943. In general, it follows the ODT regulations, but adapts them to conditions peculiar to New York State, and designates the War Transportation Committee as the agency to administer the order.

Since the order became effective, the Committee has maintained a continuous review of all school transportation in the State, to improve its efficiency, and to eliminate that which does not conform to the provisions of the order. Gasoline necessary for school transportation is allocated by ODT only upon the certification of the Committee. Due to the fact that there are no reliable figures available as to the amount of school transportation in the State prior to the date upon which Order No. 14 became effective, it is impossible to present statistics as to the conservation which has been obtained. Based upon sample studies from locations where figures were available, it is conservative to estimate that a saving of at least five million school bus miles per annum have been effected.

The saving in cost to communities is not in direct ratio to the saving in bus miles. However, this must be viewed against the background of rising costs, and it is highly probable that without the operation of Order No. 14, communities which provide transportation for their school children would have been confronted with a considerable increase in the amount paid for such transportation during the school year, instead of a reduction, as is now the case.

In addition to prolonging the life of school buses by limiting their use, the Committee has also conducted, through the Office of

War Training, a School Bus Drivers Training Program. This subject is discussed at greater length later in this report, but it is worth noting at this point that in this course the subject of preventative maintenance is stressed. The instruction which the drivers have obtained in how to take care of their buses has added considerably to the life of many school buses.

In order to insure that the provisions of Order No. 14 are fully understood by all school authorities, and to assist them in meeting the requirements of the order, the Committee has conducted a large number of meetings throughout the State which have been attended by District School Superintendents, School Principals, and others interested in school transportation. Every possible assistance has been given to those responsible for school transportation in reorganizing their bus routes to obtain maximum operating efficiency consistent with the transportation of children who live beyond the prescribed walking distance. In many communities the effect of this work will continue long past the end of the war, with consequent savings to the taxpayers of these communities.

Realizing that the transportation of children to school involves many problems which are peculiar to schools, and which do not enter into other forms of transportation, the Committee has created the School Transportation Advisory Committee to advise it in the formulation of its policies, and to assist it in the administration of the Order. This committee is composed of representatives of practically all of the different types and classes of schools, including public, private, parochial, the lower and upper grades, and high schools. The Members were recommended for appointment by the various school associations in the State.

It is gratifying to note that the Advisory Committee is strongly convinced of the necessity for the work which the War Transportation Committee is doing in this field, and that it does not favor any relaxation of the limitations which have been placed upon school transportation by Order No. 14.

In this connection, it has come to the Committee's attention that in a number of other States which have not established a State agency to regulate the wartime transportation of school children, the ability of children to reach school has been seriously impaired by transportation deficiencies. This has not happened in New York State, and the Committee has every confidence that school children to whom transportation is a necessity, not a luxury, will be provided with such transportation for the duration of the war.

GROUP RIDING

The purpose of Federal restrictions on the sale of gasoline and tires is primarily to insure that those persons to whom transportation by motor vehicle is essential, obtain the supplies necessary to enable them to perform this essential driving. A valuable by-product however, is the conservation in the vehicle itself, which is accomplished by the limitation thereby placed upon non-essential driving. However, restrictions in

themselves are not sufficient to accomplish the end sought. In the case of passenger cars, means must be provided to enable passengers and drivers to get together for the purpose of filling to capacity the cars which are permitted to operate. As the situation becomes more acute, the facilitation of group rides also provides the citizens of the State with transportation which would not otherwise be available to them.

Car-sharing programs are being carried on by around 90% of our Administrators. That the balance are inactive in this field is generally due to the fact that they are located in rural counties having no cities or major industries, or in the smaller cities where the greater part of the residents walk to work. Working with local Ration Boards, our Administrators have established transportation committees to form car-sharing groups in practically all factories of any size in the State.

DRIVER TRAINING

In cooperation with the State Office of War Training, the Committee has conducted driver institutes in Albany, Utica, Syracuse, Rochester, Buffalo, and New York, for the purpose of training instructors to teach local units. These institutes were followed up by contact with local Administrators to encourage them to initiate emergency driver training classes in their areas, utilizing the personnel trained by the institute, supplemented by personnel supplied by the Committee. A large number of these classes were organized on the local level, and were well attended.

Order No. 14 requires drivers of school buses to obtain a Regents Public Service Training Certificate evidencing completion of a course of bus driver instruction by the State Education Department. To date, more than 2700 drivers have been enrolled, of which more than 2500 have been certified. Approximately 50 more schools are now being opened which will take care of the instruction of 1300 additional drivers. It is estimated that a total of 3500 drivers will be certified by late Spring, out of a potential 4200. Since the conservation of the vehicle constituted an important part of the course taken by these drivers, they were well trained in methods of preventative maintenance, and it may be assumed that the majority of schools represented by these drivers are now following the preventative maintenance program.

So many unknown factors influence the amount of service which will be obtained from a bus that it is impossible to give anywhere near an exact estimate as to the extent to which the life of the school buses of the State has been prolonged by the operation of Order No. 14. However, a responsible official of the ODT has stated that the conservation measures carried out in this State, which include both the limitations placed upon school transportation and the training of the drivers in preventative maintenance, have added, at a very conservative estimate, more than four years to the life expectancy of its school buses.

TRAFFIC CONDITIONS

Through the State Traffic Commission, the Committee has maintained a continuous survey of traffic conditions on the highways of the State. Special attention has been paid to the vicinity of defense plants, and where necessary and possible, corrective measures have been taken.

Due to heavy snow falls there have been occasional days in each winter when workers in some areas have been unable to reach their places of employment. The total loss in man hours has been relatively insignificant. Every effort is made by the Department of Public Works and local authorities to keep the highways open, but bad storms will occasionally stop traffic for varying lengths of time, regardless of any measures which may be taken.

Unnecessary or improperly timed traffic signals cause waste of gasoline and rubber, and reduce the efficiency of vehicular operation. Working through the Traffic Commission, and its local Administrators, the Committee has been successful in having over 400 unnecessary traffic signals removed, and over 3000 changed to flashing or part time operation, throughout the State. The timing of many others has been adjusted to better meet changed conditions, and thus handle traffic more efficiently and with less stops.

In general, it may be stated that traffic conditions throughout the State have been good, and that all possible action has been taken to facilitate its flow.

TRUCK AND BUS INVENTORY

The inventory of trucks and buses throughout the State, which was requested by the War Department, was handled as a Traffic Commission matter. It is discussed in detail in the report of the Traffic Commission.

MILITARY MOVEMENTS

At the request of the War Department, the Committee set up a plan for handling the movement of troops and military material through the State, and for furnishing information to be used in determining the routes to be used in these movements. This work has been handled by the State Police. A very large number of these movements have taken place, at every hour of the day and night, and during all kinds of weather. With their excellent communication system, the State Police have handled these movements smoothly and efficiently, sending and receiving progress reports, and notifying in advance all police departments concerned.

DRIVER RECORDS

In response to requests from the Army, the Navy, and other branches of the armed services, the Bureau of Motor Vehicles has made a very large number of searches of its files, and supplied information relative to driver records.

NEW YORK METROPOLITAN AREA

As previously stated, emergency transport conditions in the New York Metropolitan Area are handled for the Committee by the Metropolitan Defense Transport Committee, an interstate committee, which was organized in May 1941. The work of this Committee is separate from the normal work of the Administrators of War Transportation.

The Metropolitan Area may be defined as the territory lying within a radius of 50 miles from Manhattan as a center. This area extends into three states. It includes 19 counties, and more than 200 separate villages, towns, boroughs, and municipalities, all interdependent from the standpoint of transportation. It has a resident population of 12 million people, all of whom are dependent upon continuous uninterrupted transportation by highway, rail, and water to supply them with the necessities of life. The following have been the major activities of the Committee.

EMERGENCY CONTROL OF PRIMARY FOOD DISTRIBUTION: The Committee has worked in close cooperation with the food industry in the Metropolitan Area in the preparation of plans for the distribution of food in the event that normal channels of supply are interrupted.

REGIONAL CONTROL OF MOTOR TRUCK ROUTING: In close cooperation with receivers of truck shipments, the Committee prepared a plan for the control and re-routing of trucks entering the Metropolitan Area under emergency conditions. This subject is discussed under the heading "Traffic Control Stations".

EMERGENCY PETROLEUM DISTRIBUTION: The Committee collected information on facilities within the Metropolitan Area for transportation, storage, and interchange facilities for petroleum products. In close cooperation with the petroleum industry, a plan for operation in emergency was prepared. Upon completion of the plan it was approved by the Federal Government, and the Subcommittee which prepared it was made a Federal agency.

SECONDAY HIGHWAY NETWORK: The Committee mapped a complete system of alternate routes for movement of civilian highway traffic in the event that main routes are commandeered by the Army or become otherwise unavailable. This system is shown on maps issued by the Oil Companies. The highway departments of the three states have erected the necessary route markers to post this secondary system.

EVACUATION TRANSPORT: At the request of the Governor's Committee on Evacuation, the Committee, in cooperation with officials of railroads, bus lines, and steamship lines, prepared a complete program, including time tables, for the movement of evacuees from New York City.

In addition, the Committee was prepared with a complete plan for the movement into the Metropolitan Area of commuters and essential supplies at the time of the threatened railroad strike in September 1941. Fortunately, the strike did not take place, but had it occurred, it is certain that the arrangements which the Committee was prepared to set up in cooperation with officials of railroad, truck, bus, and steamship companies would have been of great value in meeting the situation.

The Army has recognized the need for the work which the Metropolitan Defense Transport Committee has been doing, and the fullest cooperation has existed between them. Representatives of the various branches of the Army attend meetings of the Committee as liaison members, and serve on its subcommittees. It is interesting to note that requests have been received by the Metropolitan Defense Transport Committee from other metropolitan areas, federal authorities, and the War Department for information and advice as to the plans which it has developed. It is apparent that planning in the New York Metropolitan Area for the handling of transport under emergency conditions was well in advance of other parts of the country.

TRAFFIC CONTROL STATIONS

By Resulution No. 232 the State War Council, under date of August 14, 1942, authorized the War Transportation Committee to operate the traffic control stations referred to under the heading NEW YORK METROPOLITAN AREA, and appropriated $25,000 to defray their costs to March 31, 1943. The operation of the stations was authorized only until December 31, 1942, unless continued by order of the War Council.

Prior to the action of the War Council the stations were experimentally operated by inspectors of the Bureau of Motor Vehicles. Upon receipt of funds personnel was employed, and they were placed in operation 8 hours per day, seven days per week, in the first part of September. Arrangements were set up for their operation 24 hours per day in event of emergency, using Motor Vehicle Inspectors to supplement the regular personnel. The plan for these stations was prepared by the Metropolitan Defense Transport Committee, and their operation has been directed by it, together with the training of the personnel.

The stations are located on the perimeter of the Metropolitan Area at strategic points selected to control the entrance of trucks. Their purpose is to reroute trucks bound for points in the Metropolitan Area in the event that they are cut off by bombing, sabotage, or other emergency. The stations are provided with alternate destination points selected by receivers of truck-borne shipments, and a system has been established whereby the Control Stations will be promptly notified of any areas which are blocked off.

On December 31, 1942, the War Council decided that conditions were such that the Control Stations could be operated by volunteer

personnel. They were therefore placed under the authority of the Director of Civilian Protection as of that date. Of the $25,000 appropriated by the War Council, approximately $4,500 was spent.

The Army is using some of these Control Stations on a 24 hour basis to regulate military vehicles entering the Port District.

PUBLICITY

To educate the people of the State to the need for conservation of transportation, the Committee, with the aid of the Office of War Information, distributed approximately 90,000 car stickers, 5,000 bus cards, 9,000 subway cards, 1,800 trolley cards, 15,000 posters, and 10,000 cartoon strips. Twenty-four sheet posters were displayed on a number of billboards throughout the State. Mats of cartoons urging the conservation of gas and rubber were distributed to 143 newspapers. Assistance was rendered to Administrators in local publicity by the distribution of kits of material for newspaper releases and for radio stations. Many newspaper releases on war transportation were issued.

COOPERATION WITH FEDERAL AGENCIES

The Committee is working in close cooperation with the Office of Defense Transportation. The terms of its agreement with this agency have been previously stated.

In the early part of March 1943, an agreement was reached with the Office of Price Administration defining in detail the relationship between the War Transportation Committee and the OPA, and stating in detail the cooperation which would be extended by each agency to the other.

At a meeting held shortly thereafter, the following understanding was reached with representatives of the War Manpower Commission, the Army, the Navy, the Maritime Commission, and several other Federal Agencies.

1. The State War Transportation Committee with its local Administrators was agreed upon as the agency which would be asked to advise and assist in the solution of all matters pertaining to transportation in New York State.

2. The State War Transportation Committee and its local Administrators will render all possible assistance and cooperation to those agencies in handling transportation matters.

3. The agencies present agreed to consult with the State War Transportation Committee, and to contact the local Administrators, when working in local areas.

The Committee wishes to take this opportunity of stating that the most friendly relations have existed between it and all Federal agencies operating in the field of transportation, and to express its appreciation for the assistance and cooperation which they have extended to it in its work.

RELATIONSHIP WITH STATE AGENCIES

The Committee has not hesitated to call upon other State Agencies for advice and assistance in matters lying within their fields of operation, and wishes to gratefully acknowledge the assistance which it has received from them.

GENERAL

For the past 2-1/2 years, since the beginning of 1942, the Nation has been confronted with an approaching crisis in transportation. The War Transportation Committee was created by the State War Council to meet this situation in this State. Since the basic cause of the crisis is the war, it has been manifestly impossible to take any action to eliminate the cause. The only possible action has been that followed by this Committee, the adoption of measures to prolong the life of and to adjust existing transportation to meet our essential needs.

By this means, transportation has been maintained in New York State to the present time. There are many inconveniences, but viewed against a wartime background, it is still adequate to meet the essential needs of the citizens of the State. Unfortunately, because transportation has been maintained for the past 2-1/2 years, many people appear to have been lulled into a false sense of security.

This security does not exist. Transportation is still adequate only because of the strenuous efforts which have been made to conserve it. Every day that we have been successful in postponing the crisis in transportation brings us closer to the time when further postponement is no longer possible. We cannot predict the date when even more radical measures than are now in effect will be necessary to avoid sharply reduced war production, but it is obvious that we are 2-1/2 years nearer to it than we were when the work of this Committee began.

There are very few areas where buses are not loaded to maximum capacity at peak hours. Public transit companies are making every effort to meet the situation, and have done a remarkably good job, but are fast approaching their limit.

As an example of conditions confronting the bus industry, the following figures are cited to show the number of buses reported to be out of operation as of the end of the year, because of deficiencies stated. These figures do not include New York City.

BUSES OUT OF OPERATION	CAUSE
47	Tires
173	Parts
142	Repair Labor
106	Drivers
468	Total

The outlook for transportation by private car is not bright. The serious shortage which has occurred in the heavy-duty tires, used by the Army, trucks and buses, has required tire factories to concentrate on the production of these sizes, at the expense of manufacturing car tires. Figures have been presented in the Traffic Commission report to show the loss of passenger cars in the State. Bad weather during the present winter has undoubtedly had a serious effect upon the older cars. It may be expected that many passenger cars will go off the road during the first half of 1945 because of mechanical defects and inability to obtain tires.

The condition may be summed up by saying that transportation in New York State is still adequate as viewed in the light of wartime conditions, but that, unless conditions change, serious difficulties may be anticipated during the coming year.

APPENDIX

Activities of the State Department of Public Works

In Connection with Traffic Regulation and Control

February 1, 1945

Hon. V. L. Ostrander, Supt.
Div. of Operation & Maintenance
Department of Public Works
Albany 1, New York

Dear Sir:

Submitted herewith is a report of the activities and expenditures of the Department of Public Works in connection with the regulation of traffic and related activities for the period ending December 31, 1944. In order to present the data in proper perspective, expenditures have been shown, to the extent that information is available, for a period of ten years.

A number of changes have taken place in this period which have had an important influence on the amount expended by the Department in connection with these activities. Outstanding among these was the adoption by the Legislature of 1936 of Article 7 of the Vehicle and Traffic Law, which became effective September 1, 1936. This Article created the State Traffic Commission, and among other things, placed upon the Department the cost of installing, maintaining and removing all traffic signals on the State System of Highways.

Prior to the date upon which the Traffic Commission assumed office, the traffic activities of the Department of Public Works were confined to the erection of signs, and to the painting of pavement markings. The work was handled by the individual County Assistants as part of their maintenance operations. An attempt was made to continue the work in this manner, but this was found to be impractical, and the need for uniform and prompt action in making engineering investigations of traffic matters and in carrying out orders of the Traffic Commission, together with the increasing volume and cost of the work, made it necessary to establish control on a State-wide basis.

In June 1938 an Engineer of Highway Transport was placed in charge of the traffic activities of the Department, under the Assistant Commissioner in charge of maintenance. Since the plan of organization contemplated decentralization on the District level to the extent possible, the District Engineers were instructed in November 1938 to assign an engineer to handle traffic matters in their District. The duties of these Traffic Engineers, under the direction of the District Engineer, were outlined as follows:

To make or review all investigations and reports in connection with traffic control matters.

To initiate investigations and make recommendations for changes or improvements to promote the safer or more orderly flow of traffic.

To maintain a record of all signals in the District, including data on the cost of operation, timing, periods during which the signals are out of operation, etc.

To study critical intersections, and make recommendations for the removal of unnecessary signals and the erection of signals where needed.

To study the operation of existing signals and from time to time make such changes in the timing as may be necessary to enable the signal to handle traffic at the intersection in the most efficient manner.

To have charge of the maintenance of signals, and to see that they are painted when necessary, lenses and reflectors kept clean, relamped on regular schedules, etc.

To have charge of the installation and maintenance of signs. To review existing signs, arranging for the removal of those which are unnecessary, and the erection of new signs as required.

To have charge of the installation of pavement markings and their maintenance in condition of maximum visibility.

To have charge of the collection and filing of accident reports, and to make such studies as may develop out of their use.

To follow up all orders of the Traffic Commission to see that they are complied with promptly and correctly.

To study the effects of all changes or installations which affect traffic, in order to determine whether the results are satisfactory.

To review all plans to determine their effect upon traffic conditions, with special attention to sight distances, maximum curvatures, the design and location of intersections, etc.

Considerable attention has been paid to the training of the Traffic Engineers, and until interrupted by wartime conditions, semi-annual meetings have been held with the Traffic Supervisors of the State Police, in order to obtain a uniformity of thinking and action on traffic control matters. The results have been very satisfactory, and are reflected in improved efficiency and reduction in costs.

However, in many of the Districts the Traffic Engineers have not yet been given the full responsibilities outlined above. In most of the Districts they have been placed in charge of the traffic signal work. This is true also of the pavement marking operations, and the results are apparent in the cost of doing this work, which is discussed later. Installation and maintenance of signs is still handled in most Districts on a County basis. To centralize this work as a District matter instead of a County matter, and to place it under the charge of the Traffic Engineer, would effect a considerable economy, as well as improved signing of the highways.

In few, if any, Districts have the Traffic Engineers been given an opportunity to review designs for new highways from the angle of traffic movement. Since these men are best equipped by training and experience to pass upon such matters, an opportunity to build greater safety into our highways has been neglected.

In the spring of 1939 a program for marking 6500 miles of pavement according to a carefully developed system, on a State-wide basis, was inaugurated. The mileage of pavement was increased to 8900 in 1940 and approximately 9200 in 1941. Paint shortages made it necessary to temporarily decrease the amount of pavement marking performed in succeeding years, but the importance of pavement markings to safety on the highways is so great that painting of the complete program should be resumed as soon as paint becomes available.

In 1939 the Department purchased 35,000 roadside reflectors. Experimental installations were made on the entire length of Route 9 between the New York City Line and Albany, and at accident prone locations throughout the State. Studies indicated that the results obtained from these installations were highly satisfactory, and considerable favorable comment was received. The type originally purchased was rather fragile, and subject to vandalism. A more durable type has been developed, but shortage of material due to the war has prevented any further installations. The benefit to the night driver from the installation of roadside reflectors is so great that their use should be resumed on a large scale as soon as conditions permit.

After a study of current practices of the Department, and the quality and cost of signs purchased from commercial sources, it was decided to establish a Sign Shop at Hamburg in District No. 5. The Districts were instructed in January 1940 to discontinue painting and repairing all but certain classes of signs in their District Shops and instead to ship them

to Hamburg for reconditioning. The manufacture of new signs was also concentrated at Hamburg, and the policy was adopted that purchase from commercial sources would be discontinued, with the exception of a few types, principally route markers.

A program was started in February 1940 for re-signing major routes according to modern standards. Considerable preparatory work was accomplished, and a number of signs were erected. However, shortage of materials and labor made it necessary to cancel this program in June 1941.

In April 1940 work was started on bringing the route marking on the State System of Highways into conformance with national standards, according to detailed instructions which were issued. This required the purchase of a large quantity of additional route markers. At the same time attention was concentrated on reconditioning existing markers. Considerable delays were encountered in obtaining delivery of new route markers, with the result that the program was still under way at the time that labor shortages due to the war made it impossible to fully complete it. All necessary route markers have been delivered, but the job cannot be considered as finished, and work on it should be resumed when labor again becomes available.

In the war years of 1942, 1943 and 1944, traffic volumes on the State System of Highways dropped sharply. Materials and labor became scarce. During these years every effort was made to reduce the Department's expenditures for traffic control work to the minimum consistent with safety and proper maintenance. Very little new material was purchased, and operations were conducted with stocks already on hand, supplies being transferred between Districts as necessary to maintain an equitable distribution to meet the needs of each District on the reduced basis.

EXPENDITURES

Table No. 10 presents expenditures of the Department of Public Works for traffic control items for the calendar years 1935 to 1944 inclusive. These figures are taken from the annual M & R reports. They do not include overhead nor engineering. In considering these figures it should be borne in mind that they do not represent actual costs of operation for the year, but are expenditures made by the Department during the year. The cost of material purchased in any one year is included in the expenditures for that year, although the material may not be used until succeeding years. For example, the sharp rise in the expenditures for traffic signals in 1938 and 1940 is due to the fact that considerable quantities of signal equipment were purchased in those two years, much of it being held in stock for use as required. Another example would be expenditures for pavement marking. The last year in which any paint for use in marking pavements was purchased was 1941. All pavement marking since that date has been performed with stocks accumulated in 1941 and preceding years.

TABLE NO. 10

DEPARTMENT OF PUBLIC WORKS
Direct Expenditures by Calendar Year
Overhead & Engineering Not Included
(From Annual M & R. Report)

Item	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
SIGNS										
New	$ 88276	$ 61322	$ 47060	$ 94681	$ 53542	$ 40861	$ 50806	$ 41375	$ 13731	$ 9260
Maint. & Repair[1]	223841a	245706a	275633a	144832	167718	117697	133883	113333	100103	119249
Mfg. & Recondition[2]	(b)	(b)	(b)	(b)	(b)	45209	74923	53936	22075	42694
TOTAL SIGNS	$312117	$307028	$322693	$239513	$221260	$203767	$259612	$208674	$135909	$171203
TRAFFIC SIGNALS	$ (c)	(c)	138864	258701	173097	202026	174207	180048	139152	134853
PAVEMENT MARKING	$ (d)	(d)	(d)	185000	115380	115015	103426	42327	24620	20114
TOTAL	$312117	$307028	$461557	$683214	$509737	$520808	$537245	$431049	$299681	$326170

(1) District Charges
(2) Hamburg Shop

(a) Includes expenditures for Pavement Marking
(b) Hamburg Sign Shop started operation in 1940
(c) State took over traffic signals Sept.1,1936
(d) Included with Maintenance & Repair of Signs.

PAVEMENT MARKING

The cost of painting pavement markings is a considerable item in the total of the Department's expenditures for traffic control work. Prior to 1939 this work had been carried out on a County basis, approximately 5,000 miles of pavement being painted per year. Due to lack of centralization there was little uniformity and the costs were high.

The adoption of uniform standards for pavement marking throughout the State in 1939 presented an opportunity to improve the efficiency of this operation. Accordingly, the Districts were instructed to carry out pavement marking as a District, not a County matter, the painting to be performed by District paint crews, trained in handling the paint machines, who could be expected to gain in skill and experience as the work progressed.

The efficiency in operation was checked by means of weekly cost reports submitted by each District, and as new ideas were developed by individual Districts for improved methods of operations, they were disseminated among the other Districts. Considerable improvements in methods were made in 1938 and 1939, and by 1941, the last year in which the full program was painted, it may be said that a fairly high peak of efficiency had been reached.

It will be noted by reference to Table No. 11 that the cost of applying a gallon of paint, including the cost of the paint, dropped from $2.10 in 1939 to $1.71 in 1941. In the same period the cost per mile of all types of painting had dropped from $21.23 to $19.28.

The reduction in cost per mile in 1941 is greater than is apparent, when it is considered that the thickness of the paint film applied to the pavement was increased in 1941 in order to obtain greater durability.

These are actual costs, with the exception of overhead, and include a charge for engineering and for truck rental at the Comptroller's rates. Paint is charged at the purchase price of the paint used. For this reason it is impossible to compare them with costs prior to 1938, which, as listed on the M & R reports, do not include engineering and truck charges, but may include large amounts of paint purchased but not used during the year. Nevertheless, it is certain that costs per mile were considerably less in 1939 and succeeding years than they were prior to 1939.

A large portion of the credit for this reduction in costs must be given to the efficient pavement marking machines designed and built by District Engineer Waters at his Hamburg Shop. The development of methods to eliminate stoppages in the flow of paint, and to eliminate delays due to loading paint, were also a considerable factor. At the present time a paint truck, once started, continues to apply paint to the pavement throughout the greater portion of the working day, with very little interruption.

TABLE NO. 11

ALL PAVEMENT MARKING INCLUDING REPAINTING
(Actual cost including Engineering and Truck costs, but no Overhead)

Year	Miles Pavement Marked	Cost	Gal. Paint	Cost per Gal.	Cost per Mile
1939	6488	$137,742	65434	$2.10	$21.23
1940	8887	176,267	87338	2.02	19.84
1941a	9164	176,920	103834	1.71	19.28
1942b	8138	74,840	39215	1.91	9.19
1943b	7062	59,229	31045	1.91	8.38
1944c	5066	43,764	19341	2.27	8.64

(a) Thickness of paint film increased in 1941
(b) Painting reduced to 50% of 1941 program
(c) Painting reduced to 25% of 1941 program

Table No. 11 shows the total mileage marked, cost, and gallons of paint used for the calendar years 1939 to 1944 inclusive.

It will be noted that there is a considerable reduction in mileage painted and amount of paint used in 1942, 1943 and 1944. This is due to the fact that good quality paint disappeared from the market and it was necessary to continue painting in those years with stocks of paint on hand at the end of 1941. In 1942 lane and center line marking was eliminated to a large extent and the District Engineers were given discretion to discontinue all but those markings which they considered must essential to traffic, being instructed to limit the amount of paint used to 50% of that used in 1941. By 1944 the stock of paint on hand was becoming very low and further instructions were issued to limit the quantity used to 25% of the 1941 painting.

Costs per gallon and per mile rose in these years. This is to be expected, and is due to the fact that since painting was not continuous over the entire mileage, the number of productive hours per day per machine and crew was necessarily reduced. Higher labor costs were also a factor.

The costs of first painting and repainting line markings and special markings are detailed in Tables Nos. 12 and 13. It will be noted that the cost of special markings is much higher than the cost of line markings. The painting of special markings is a hand operation, whereas the painting of line markings is a machine operation.

An analysis of the cost by Districts of first painting and repainting of the different types of pavement markings for the year 1941, the last year in which the full program was painted, is shown in Table Nos. 14 and 15. In comparing costs between Districts, it should be borne in mind that the factors affecting costs vary according to the nature of the terrain. There is still a variation in costs which can not be accounted for entirely by this, which indicates that a further increase in efficiency is possible, with a consequent reduction in total costs.

SIGNS

In 1940 a Sign Shop was established at Hamburg in District No. 5, the purpose being to improve the quality and reduce the costs of signs used by the Department. The purchase and repair of signs has been one of the large items of expenditure by the Department for traffic work, and it was felt that there was a need for placing these operations on a more efficient basis. The results obtained have been extremely gratifying.

Signs manufactured at Hamburg are superior in appearance and durability to any previously used by the Department, and the cost is less. In manufacturing these signs every attention is paid to the items which will insure the greatest life before reconditioning becomes necessary.

TABLE NO. 12

LINE MARKING
(Actual cost including Engineering and Truck Costs, but no Overhead)

Year	Miles Pavement Marked	FIRST PAINTING			REPAINT			TOTAL		
		Cost	Gal. Paint	Cost per Gal.	Cost	Gal. Paint	Cost per Gal.	Cost	Gal. Paint	Cost per Gal.
1939	6488	$84340	43978	$1.92	$19125	13513	$1.42	$103465	57491	$1.80
1940	8887	113597	63103	1.79	31394	17222	1.82	144991	80325	1.81
1941	9164	101486	65181	1.56	50557	32261	1.57	152043	97442	1.56
1942	8138	52899	32105	1.65	6519	3827	1.70	59418	35932	1.65
1943	7062	50885	28818	1.76	817	460	1.78	51702	29278	1.76
1944	5066	36098	17884	2.02	367	175	2.09	36465	18059	2.02

TABLE NO. 13

SPECIAL MARKINGS
(Actual cost including Engineering and Truck Costs, but no Overhead)

Year	FIRST PAINTING			REPAINT			TOTAL		
	Cost	Gal. Paint	Cost per Gal.	Cost	Gal. Paint	Cost per Gal.	Cost	Gal. Paint	Cost per Gal.
1939	$30583	7148	$4.28	$3694	795	$4.65	$34277	7943	$4.32
1940	27503	6088	4.52	3773	925	4.08	31276	7013	4.46
1941	21564	5671	3.80	3313	721	4.59	24877	6392	3.91
1942	15422	3283	4.70	0	0		15422	3283	4.70
1943	7527	1767	4.26	0	0		7527	1767	4.26
1944	7299	1282	5.68	0	0		7299	1282	5.68

TABLE NO. 14

FIRST PAINTING 1941

Line Marking

DIST.	2 LANE PAVT. (C.L. Not painted)			2 LANE PAVT. (C.L. painted)			3 LANE PAVT.			4 LANE PAVT.			TOTALS		
	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile
1	504	2026	$6.70	816	5830	$11.98	123	1114	$17.90	16	339	$34.00	1459	9309	$10.89
2	463	1785	5.92	347	2715	9.99	85	1000	17.61	9	175	24.11	904	5675	8.76
3	389	1044	5.15	482	3963	12.62	74	744	23.11	18	377	41.83	963	6128	10.96
4	259	554	4.39	313	1906	9.75	68	633	15.44	35	525	23.69	675	3618	8.99
5	154	276	3.24	392	2588	9.04	109	1037	14.19	67	1269	26.15	728	5268	10.27
6	373	709	4.28	131	784	8.55	8	82	13.00	0	0	0	512	1575	5.51
7	629	2309	6.23	312	2039	11.09	9	86	19.44	0	0	0	950	4434	7.95
8	729	5598	11.33	487	6161	18.05	258	3109	18.76	75	1501	30.88	1557	16537	15.73
9	695	4850	10.13	318	3274	15.07	38	531	22.50	8	173	30.13	1059	8828	12.19
10	86	572	9.69	100	902	13.53	103	1007	16.08	68	1328	28.57	357	3809	16.20
TOTAL	4281	19723		3698	30162		875	9343		296	5687		9164	65181	
WEIGHTED AVERAGE			7.34			12.28			17.88			29.04			11.07

Special Markings

DISTRICT	GALS.PAINT	$	DISTRICT	GALS.PAINT	$
1	89	356	6	258	944
2	347	1094	7	659	2449
3	881	2849	8	934	4406
4	609	1912	9	550	2524
5	404	2233	10	940	2797
			TOTAL	5671	21564

TOTALS		
	Gal.Paint	$
LINE MARKING	65,181	101,486
SPECIAL MARKING	5,671	21,564
TOTAL	70,852	123,050

TABLE NO. 15

REPAINTING 1941

LINE MARKING

DIST.	2 LANE PAVT. (C.L. not painted)			2 LANE PAVT. (C.L.painted)			3 LANE PAVT.			4 LANE PAVT.			TOTALS		
	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile	Miles Comp.	Gal. Paint	Cost Mile
1	287	1357	$7.42	224	1848	$13.34	119	1104	$16.70	19	367	$32.53	649	4676	$11.90
2	288	569	4.13	151	785	7.80	73	675	14.15	4	60	24.25	516	2089	6.78
3	76	225	4.67	201	1430	11.05	58	505	17.09	17	245	23.41	352	2405	11.26
4	199	236	3.15	120	686	8.62	58	527	14.48	37	545	20.46	414	1994	7.86
5	114	179	2.56	374	2200	8.58	87	767	11.93	60	876	19.68	646	4276	9.38
6	309	578	4.38	128	651	7.65	8	72	12.25	0	0	0	445	1301	5.46
7	249	387	4.30	80	364	9.30	8	72	15.75	0	0	0	337	823	5.76
8	251	1346	8.25	234	2887	18.07	230	2233	15.03	66	1495	35.47	783	8016	15.55
9	202	1195	8.85	109	1045	13.37	24	152	11.79	13	60	6.77	348	2452	10.39
10	56	468	10.88	93	1025	15.42	91	1108	18.32	67	1628	32.48	307	4229	19.17
TOTAL	2031	6540		1714	12921		756	7215		283	5276		4797	32261	
WEIGHTED AVERAGE			5.76			11.36			15.24			27.05			10.54

SPECIAL MARKINGS

DISTRICT	GALS.PAINT	$	DISTRICT	GALS.PAINT	$
1	20	57	6	119	492
2	20	63	7	28	175
3	0	0	8	110	633
4	115	427	9	46	285
5	128	610	10	135	571
			TOTAL	721	3313

TOTALS	Gal.Paint	$
LINE MARKING	32,261	50,557
SPECIAL MARKING	721	3,313
TOTAL	32,982	53,870

The specifications under which the steel sheets used in the manufacture of the signs are purchased require the highest grade of zinc coating obtainable. Reflector buttons are purchased under a specification written to obtain durability and the highest quality of reflectivity. Before the primer coat is applied the sheets are treated in a chemical solution called Bonderizing, which insures maximum adhesion between the zinc and the paint, and also rustproofs the edges where cuts have been made. Baking enamel instead of air dry paint is used, and each coat is baked before the succeeding coat is applied.

Different methods of finishing are employed from time to time, in order to determine those which have the greatest life, and in order to provide a check, each sign is marked with the date manufactured and a symbol indicating the type of finish used.

In reconditioning a sign the same process is followed. All old paint is stripped from the sign by means of a chemical bath, dents and irregularities are hammered or pressed out, the sign is Bonderized, and the finish is applied in the same manner as in a new sign. Defective reflector buttons are replaced. To all intents and purposes a sign reconditioned in this manner is as good as a new sign.

Table No. 16 shows expenditures for the Hamburg Shop and production for the calendar years 1940 to 1944 inclusive. Expenditures include the equipment of the shop including baking ovens, spray booths, etc.

The number of signs purchased and the cost is shown in Table No. 17. The figures show orders placed, and deliveries on some may have been made in the following year.

The use made of the Hamburg Shop by each District is analyzed in Tables Nos. 17 and 18.

Although the Department policy is that all manufacture and repair of signs, with a few exceptions, shall be performed at the Hamburg Shop, the M & R figures indicate that considerable sign repair and manufacture is still taking place in the District Shops. The decrease in cost of sign work will be in direct proportion to the extent to which this practice can be reduced.

In addition to the signs manufactured at the Hamburg Shop, it has been necessary to purchase signs from outside sources. These consisted primarily of route markers and stop signs, with a small number of parking signs. The majority of signs purchased were route markers necessary to carry out the route marking program which was started in 1940. All of these route markers have been delivered, as is indicated by the decrease in the number purchased after 1942.

There is considerable room for saving in costs through improving the efficiency of field operations in connection with erecting and

TABLE NO. 16

HAMBURG SIGN SHOP

YEAR	COST OF OPERATION				SIGNS RECONDITIONED		SIGNS MFGD.2	TOTAL OUTPUT SIGNS
	Expended/	Freight Recond. Signs	Freight New Signs	Total	Route Markers	Other Signs		
1940	$45,209	$2,209	$ 601	$48,019	20,925	1,831	3,068	25,824
1941	74,923	2,345	1,483	78,751	20,073	2,172	7,582	29,827
1942	53,966	2,289	845	57,100	14,257	2,198	5,682	22,137
1943	22,075	1,359	201	23,635	10,292	1,256	1,991	13,539
1944	42,694	1,631	312	44,637	13,581	2,288	2,626	18,495

(1) Includes labor, supplies and purchase of equipment, but no overhead.
(2) All larger than Route Markers

TABLE NO. 17

SIGNS PURCHASED

YEAR	ROUTE MARKERS		OTHER SIGNS		TOTAL	
	No.	Cost	No.	Cost	No.	Cost
1940	26493	$43890	868	$4365	27361	$48255
1941	19466	24671	1347	3150	20813	27821
1942	3893	5493	1039	3343	4932	8836
1943	247	396	186	177	433	573
1944	12	30	153	522	165	552

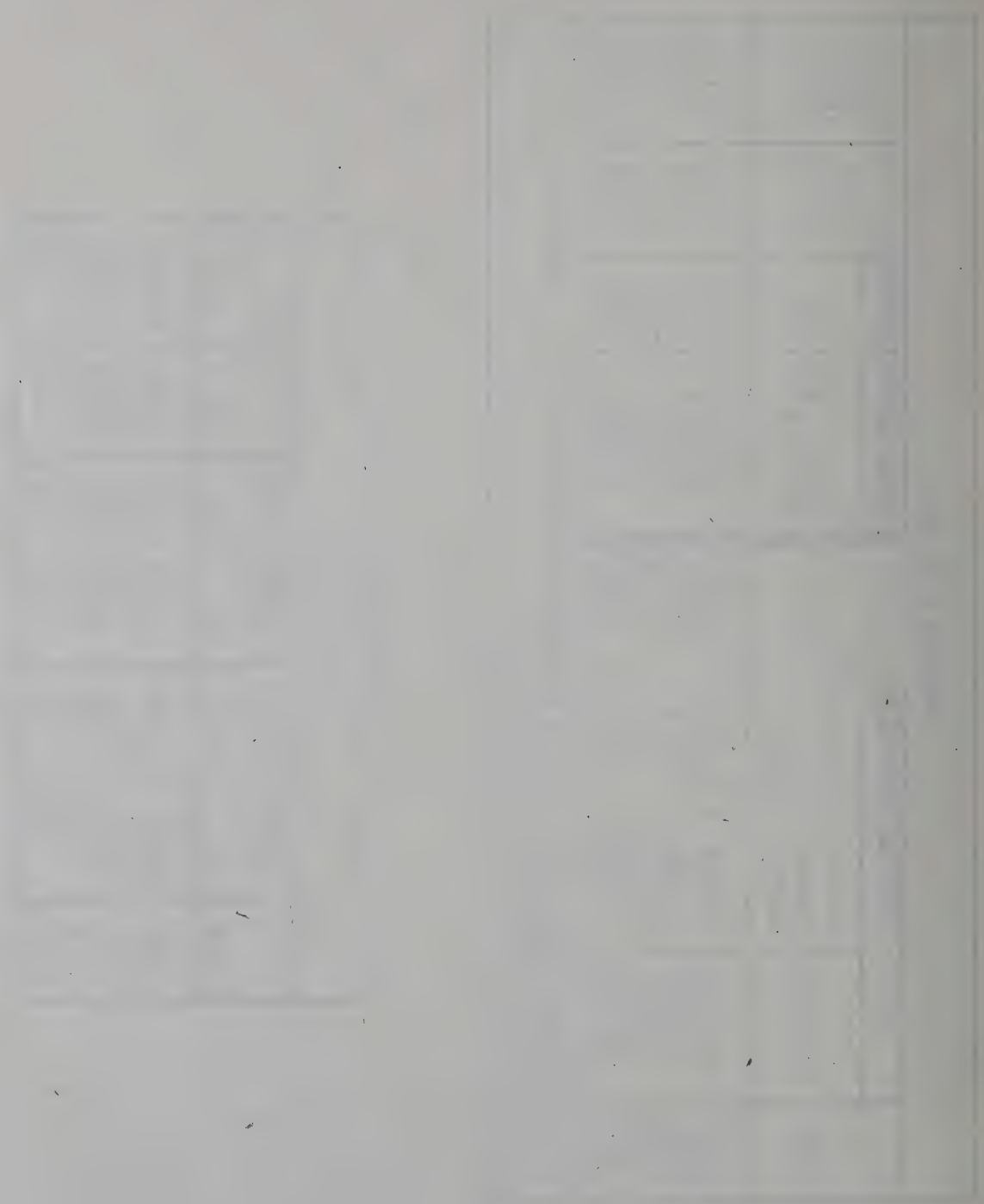


TABLE NO. 18

SUMMARY OF
SIGNS MANUFACTURED
AT THE HAMBURG SIGN SHOP

Dist. No.	Miles in Dist.	Number of Signs 1					5 Year Totals	Signs Per Mile in 5 yrs.
		1940	1941	1942	1943	1944		
1	1699	391	1531	679	277	54	2932	1.72
2	1254	121	428	338	144	297	1328	1.06
3	1455	389	342	356	67	208	1362	0.94
4	1306	112	496	426	67	65	1166	0.89
5	1188	607	814	625	817	1181	4044	3.40
6	984	433	884	676	18	78	2089	2.13
7	1457	305	563	443	46	103	1460	1.00
8	1644	388	2060	1088	413	277	4226	2.57
9	1373	318	404	697	81	152	1652	1.20
10	416	4	60	354	61	211	690	1.66
Totals	12776	3068	7582	5682	1991	2626	20949	1.64

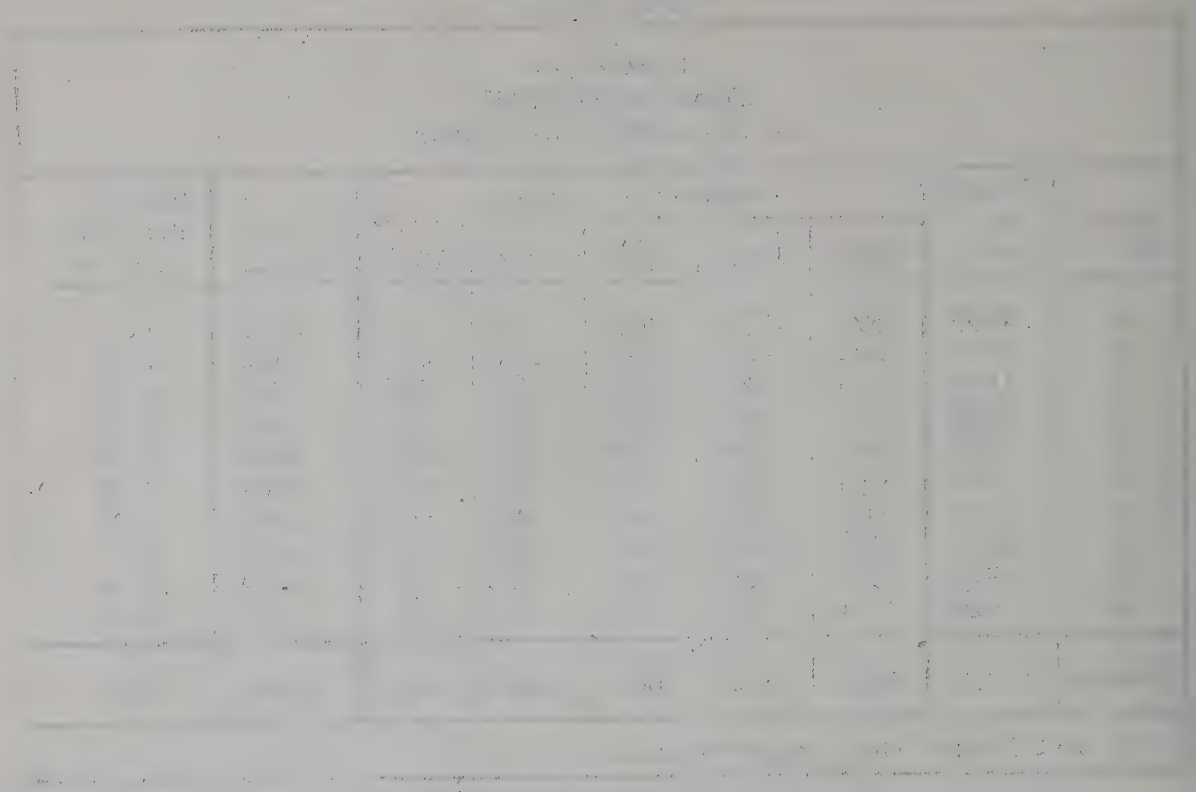
(1) All larger than Route Markers

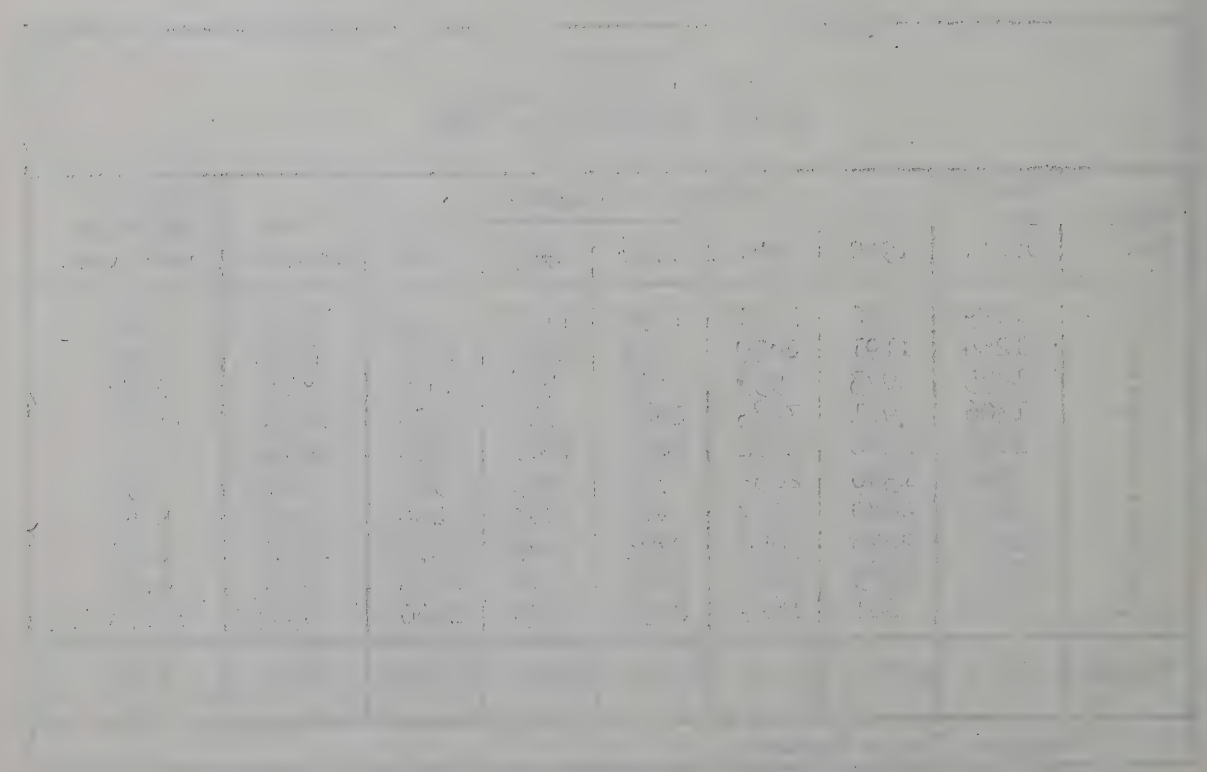
TABLE NO. 19

SUMMARY OF
SIGNS RECONDITIONED
AT THE HAMBURG SIGN SHOP

Dist. No.	Miles in Dist.	Number of Signs 1					5 Year Totals	Signs Per Mile in 5 yrs.
		1940	1941	1942	1943	1944		
1	1699	3300	1351	1592	1173	771	8187	4.82
2	1254	1191	2859	679	1038	1783	7550	6.02
3	1455	1073	959	699	518	886	4135	2.84
4	1306	3901	3483	2988	2215	2309	14896	11.20
5	1188	2198	1372	2067	1867	2860	10364	8.74
6	984	1390	2053	755	695	918	5811	5.92
7	1457	4689	1327	975	1001	294	8286	5.69
8	1644	2228	5058	2793	1999	2195	14273	8.67
9	1373	2185	2164	1274	512	2693	8828	6.42
10	416	601	1619	2633	530	1160	6543	15.73
Totals	12776	22756	22245	16455	11548	15869	88873	6.96

(1) Includes Route Markers





removing signs. In most Districts this is still handled as a County matter. To handle this operation as a District matter under the direction of the Traffic Engineer, using one or two specially equipped sign trucks per District, would effect considerable savings.

R. C. GEORGER
Engineer of Highway Transport

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